POWER

MID-JUNE 1950

A McGRAW-HILL PUBLICATION DEVOTED TO GENERATING, TRANSMISSION AND APPLICATION OF THE POWER SUPPLIED

Complete listings to help you find the equipment you need . . . this

DIRECTORY

of power equipment and supplies

PAGE 39

Keep up to date on product improvement. Check these new items of plant

EQUIPMENT

Beginning on

PAGE 145

Mid-Year Buyers' Guide Number

Hunting for parts for your older equipment? Be sure to look in the

INDEX

to former manufacturers

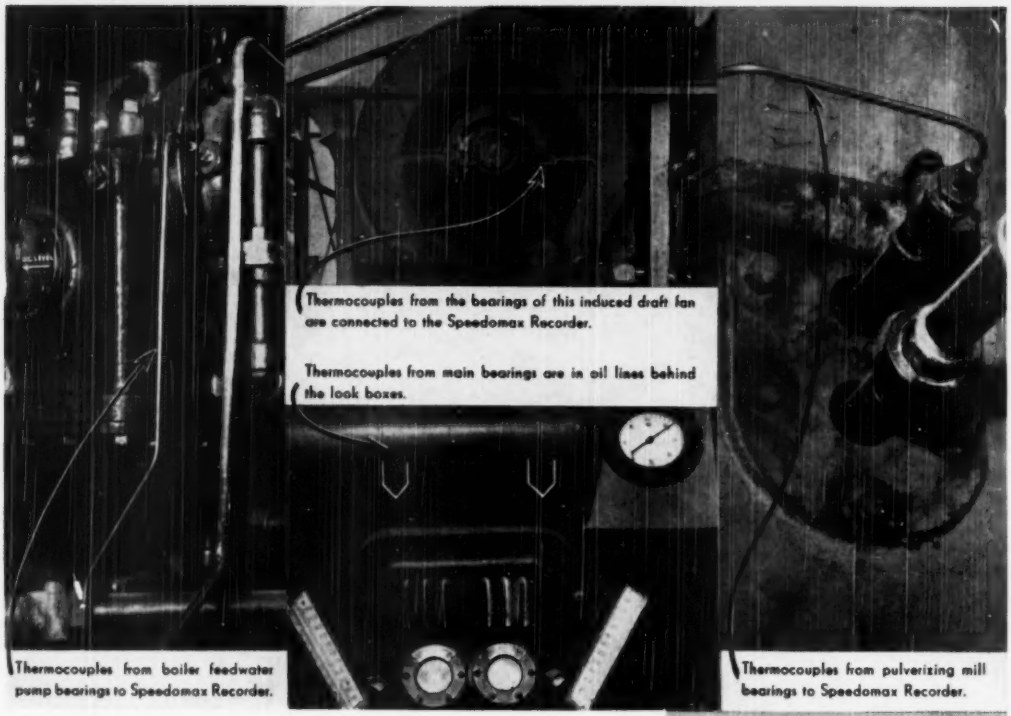
PAGE 142

Get all the benefits of makers' know-how. Select your important new

CATALOGS

and technical bulletins

PAGE 183



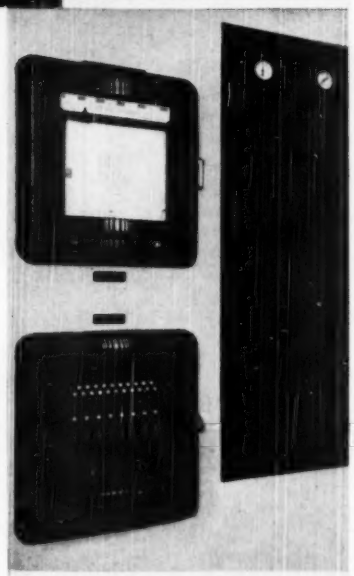
Temperature From These 4 Points
. . . and 156 more . . .
At ONE Speedomax Recorder

Remarkably fast, this new Speedomax offers a definite advance in temperature checking and recording. With Speedomax, an operator can "tour" the temperatures of 160 points in a little less than eleven minutes. He can watch readings as they are automatically indicated; or Speedomax will record them for later examination and for the shift log.

Readings are supplied in such rapid rotation, that it is generally possible to spot any high or low temperature as soon as it develops. In addition, greater operating efficiency is obtained because of the centralization of instrument readings.

The installation procedure is entirely standard. The company's staff simply installs thermocouples at those points from which they desire temperature readings. Couples are connected to the Speedomax equipment in banks of 20 each, with as many as eight banks. Appropriate alarms may be included.

For further information about this versatile temperature checking equipment, simply write for your copy of Folder ND46-33A(1). Address Leeds & Northrup Co., 4987 Stenton Ave., Philadelphia 44, Penna.



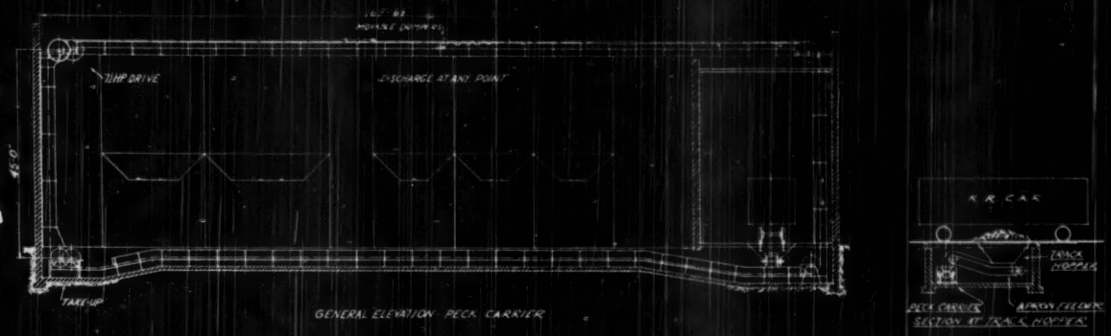
Speedomax Recorder for all points shown and enough more to record a total of 160.

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

LEEDS & NORTHRUP CO.

Jrl Ad ND46-33A(2)

POWER (with which are consolidated "Science and Industry," "The Engineer Review," "The Engineer" and "The Stationary Engineer"), Mid-June, 1950, Vol. 94, No. 6BG. Published monthly with an additional Directory number in June. McGraw-Hill Publishing Company, Inc. Editorial and executive offices, 330 West 42nd Street, New York 18, N. Y. Entered as second class matter January 26, 1949, at the post office at New York, N. Y., under the act of March 3, 1879. Printed in U. S. A. Allow at least ten days for change of address. Subscription rates—U. S. and U. S. Possessions $5 for one year, $7 for two years, 65c per copy. Canada $7 for one year, $11 for two years. Pan American Countries, $10 for one year, $16 for two years. All other countries $15 for one year, $25 for two years. Please indicate position and company connection on all subscription orders.



Coal handling modernization pays off in textile plant

LINK-BELT Peck Carrier proves ideal solution

The above illustration shows the operation of the movable tripper of the Peck Carrier, to permit coal to be dumped at any point on the horizontal run.

The problem at the power plant of Dominion Textile Company, Limited, at Magog, Quebec, Canada, was to increase the steam generating capacity and to modernize the coal handling system to cut unloading time.

The boiler and track layout proved ideal for the use of a Peck overlapping pivoted bucket carrier, which would follow a rectangular path in a vertical plane (as shown by sketch), with the coal being delivered by railroad car through a track hopper to an apron feeder discharging to the carrier for distribution along the top horizontal run into storage bunkers. The coal can be discharged at any point along top run merely by presetting the dumper mechanism that tilts the buckets.

The operation of the Peck Carrier is quiet and there is no vibration since the buckets move slowly. The capacity of this plant was set at 45 tons per hour, but this figure has been exceeded.

This is but one of the types of modernization equipment designed, built and installed by Link-Belt for both small and large plant operation. Ask our nearest office for details.

TYPES OF LINK-BELT CONVEYING MACHINERY

Belt Conveyors	Bulk-Flo Conveyors
Bucket Carriers	Screw Conveyors
Bucket Elevators	Car Unloaders
Flight Conveyors	Coal Crushers
Chain Conveyors	Weigh Larries
Apron Conveyors	Skip Hoists

LINK-BELT COMPANY Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

11,482

LINK-BELT

CONVEYING MACHINERY

"THE COMPLETE LINE"

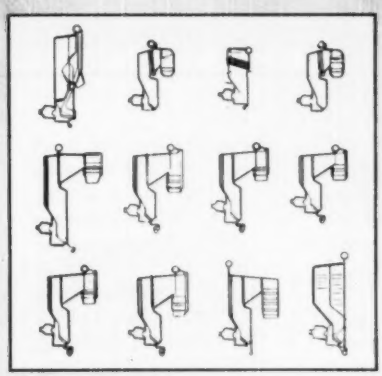
OUTSTANDING ACCEPTANCE

Already, as shown on the chart above, B&W's revolutionary new method of coal-firing has been selected for a total of 19 boilers with aggregate steam capacity of more than 10 million pounds per hour . . . sufficient to serve over a million kw of new generating capacity. Lower boiler maintenance, greatly reduced fly-ash emission, simplified ash-handling, effective utilization of low-grade coals, safety in operation, and elimination of large and expensive auxiliary equipment, are some of the outstanding advantages that account for the immediate popularity of this amazingly better firing method.

CHARTING PROGRESS

the New B&W Cyclone Furnace

...latest report on applications and advantages of this revolutionary firing method



RANGE OF APPLICATION

The 54 B&W Cyclone Furnaces now installed or on order are designed to serve Radiant and Open-Pass units with hourly steam capacities ranging from 180,000 to 830,000 pounds; design pressures to 2125 psi, and temperatures to 1050 F. Reheat and pressurized furnaces are other features of some of these outstanding jobs. Fuels range from North Dakota lignite to West Virginia Pocahontas, oil and gas, burned separately or in combination.

Helping Industry Cut Steam Costs Since 1867 — through Research, Engineering, Equipment, Installation and Maintenance Services.

BABCOCK & WILCOX

C-1921

A nameplate you see

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Houston 2.....713 M & M Building
Kansas City 6.....805 Midland Building
Los Angeles 15.....714 W. Olympic Blvd.
Milwaukee.....744 N. 4th Street
Minneapolis 2.....830 Pillsbury Building
Newark.....4th Avenue and 13th Street
New York 7.....225 Broadway
Philadelphia 2.....801 Morris Building
Pittsburgh 19.....718 Frick Building
San Francisco 4.....1504 Russ Building
St. Louis 3.....1221 Locust Street
Seattle 1.....1101 Vance Building
Tulsa 3.....616 McBirney Building
Washington 5, D.C...Washington Gas Light Bldg.
Wilmington 7.....Industrial Trust Building
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For Diesel Plants, ELLIOTT builds...

TURBOCHARGERS
GENERATORS • MOTORS
BLOWERS—STRAINERS

Almost everywhere that power is made and used, you may come upon the familiar Elliott plate identifying important equipment . . . With it, you will almost invariably find among executives and operating staff, a high degree of satisfaction in the performance of the unit so marked. Reliability as an Elliott characteristic is as soundly established as the equally vital quality of forward-thinking engineering which distinguishes Elliott products.

For Process Plants, ELLIOTT builds...

CENTRIFUGAL BLOWERS and BOOSTERS
STEAM JET EJECTORS • STEAM TURBINES
MOTORS • TUBE CLEANERS

For all kinds of Plants, ELLIOTT builds...

ELECTRIC MOTORS from 1 hp up
STRAINERS • TUBE CLEANERS

G-1148

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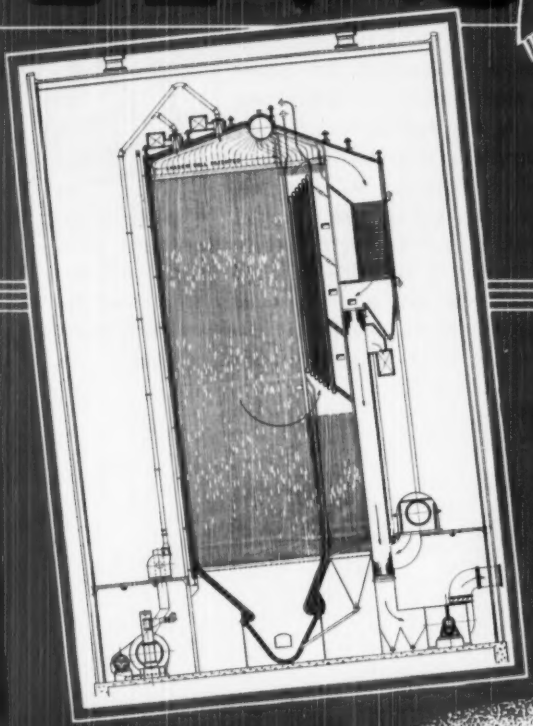
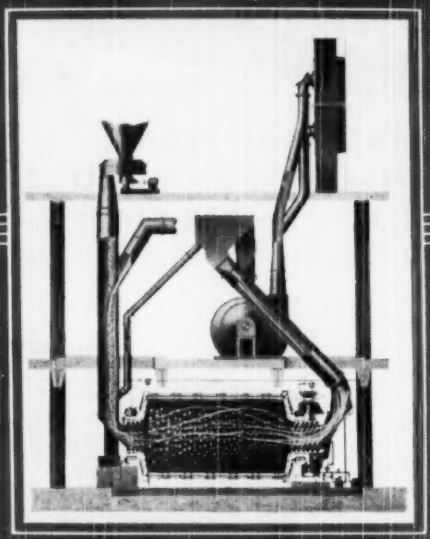
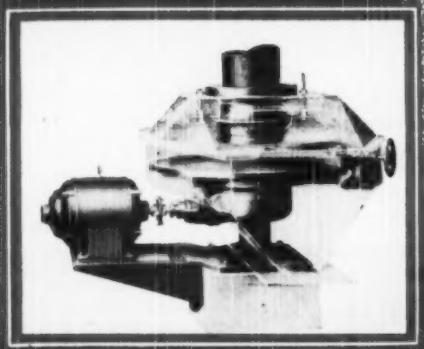
KVS Engineered



BOILERS, WATER WALLS
SUPERHEATERS, AIR PREHEATERS

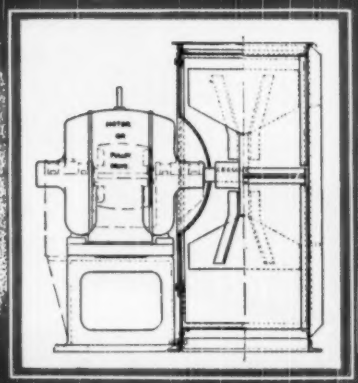


PULVERIZERS



FEEDERS

WRITE FOR



FANS

POWER PLANTS and... Equipment

for operation on any fuel that will burn

ANY CAPACITY ANYWHERE

BOILERS

Available in standard designs in the range from 25,000 to 200,000 pounds of water evaporated per hour, from saturated temperatures to 1,000°F. at superheater outlet. Furnace volume, area and arrangement of heating surface, the generation of superheat and its control are engineered to meet the requirements of the specific plant.

FEEDERS

Enclosed Disc Type and extremely reliable in feeding coarse or fine material. Rate of feed easily varied. Complete enclosure prevents dust from escaping to boiler room. Accuracy of feed not affected by moisture in room.

FANS

Especially designed for pulverized fuel, the weight of a KVS Fan is several times that of the average exhauster. Substantially built with Herculite steel liners, heavy shafts, heavy bearings, stronger blade arms, stronger spiders. Made in sizes from 20" to 100" and designed for motor, pulley or steam turbine drive.

PULVERIZERS FOR WET OR DRY COAL

The KVS Air Swept Tube Mill is a slow speed ball mill which assures perfect pulverization by air separation. It will prepare all grades of coal at low cost. Superfine pulverization with wet coal ground in hot air results in the preparation of a carbureted fuel which is floated out as an impalpable powder and fed to the burners. Basic principle of operation is an exclusive KVS feature.

COAL BURNERS

This component may be either of the rotary or vortex type, is low in first cost and maintenance and high in availability. High turbulence completes carburization of coal and assures high furnace temperature on all grades of coal.

PREHEATERS

KVS Preheaters assure high overall efficiency with low exit gas temperatures. Downdraft gas and cross counterflow air type. Minimum pressure drop. Will safely handle gases having high sulphur content.

SUPERHEATERS

Final superheat temperatures controlled by most suitable methods: Separately fired superheater section, thermostatically controlled feedwater injection, external exchange of heat or by use of a bypass damper-controlled superheater in the first gas pass. Uniform steam temperatures assured at all ratings.

STEAM PURIFIERS

The KVS cyclone type steam drier and purifier produces steam in which the impurity carryover is less than .5 parts per million and the moisture content is less than ¼ of 1% with 100% feed water makeup. Recontamination of boiler water is eliminated by collecting solids and removing them from the boiler.

COMPLETE PLANTS

KVS ENGINEERING SERVICE

Kennedy Van Saun offers a service in the design, furnishing and erection of complete steam power plants for operation in any part of the World where fuel and water are available. This service contemplates all components, including electrical units, whether or not actually built by KVS, "from bunker to bus bar," and for operation on lowest grades fuel including waste, tailings, washings, in fact on any fuel, solid or liquid that will burn. The successful handling of this class of work in locations outside the continental limits of the United States is assurance that KVS service can be valuable to you *anywhere*.

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there can be no mistake

in reading boiler water level with the

DIAMOND BI-COLOR WATER GAUGE

WATER SHOWS
GREEN
a full glass is entirely GREEN

STEAM SHOWS
RED
an empty glass is entirely RED

There can be no mistake in reading boiler water level when the Diamond Bi-Color Water Gauge is used. By reason of the unwarying optical law employed, water always shows green—steam always shows red. The contrast is unmistakable ... and there is no time lag. There are no moving parts. No linkages or extra piping are used and variation in the specific gravity of the water has no effect whatever.

The Bi-Color image is so sharp and clear that it can be mirrored from any reasonable height* and through as many as three grating runways to the firing floor . . . without the slightest confusion. The lower mirror can be made part of the control panel. The Diamond Bi-Color can be easily substituted for most existing water gauges, whether of Diamond or other manufacture.

Diamond Bi-Color has proved its value through many years of successful operation in thousands of boiler plants. Write for Bulletin 1015.

*Where the distance is greater than approximately 100 ft. and multiple mirrors are required, or where the cost of keeping the light path clear of obstructions is a factor, the addition of a Diamond "Ultiscope" is recommended.

DIAMOND POWER SPECIALTY CORP.
LANCASTER, OHIO
Diamond Specialty Limited • Windsor, Ontario

The

DIAMOND "UTILISCOPE"

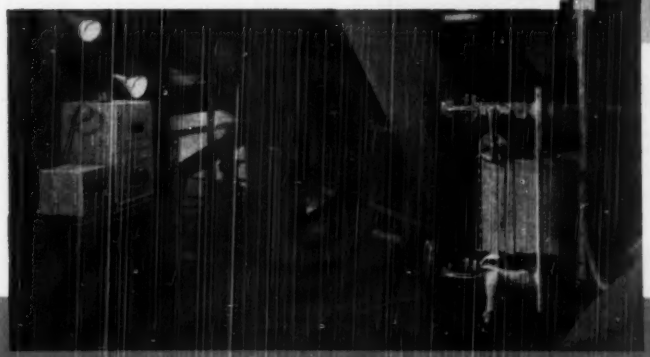
(WIRED TELEVISION)

Brings Boiler Water Level to the Control Panel

there can be no mistake

Regardless of the obstructions and the distance between boiler water level gauge and control panel, the Diamond "Utiliscope" brings an exact instantaneous and continuous picture of the water level to the operator in the control room. There can be no mistake because the "Utiliscope" shows either the correct reading or there is no image.

The continuous picture produced by 60 image fields per second (sound motion pictures have 48) shows *instantly* any change in water level . . . there is no measurable time lag. Among the other advantages of the "Utiliscope" are: sharp contrast, simplicity of design, rugged construction, easy installation, exceptional stability and simple control. It has numerous additional uses such as remote observation of stack discharge, combustion in furnaces, destructive testing, etc. Ask for Bulletin 1025 which will suggest many other applications.



(Above) The "Utiliscope" screen is readily incorporated into the control panel where it is most convenient and always before the operator.

(At left) The "Utiliscope" camera is permanently focused upon the boiler water gauge. It sees and instantly transmits every variation in water level . . . its attention never wanders.

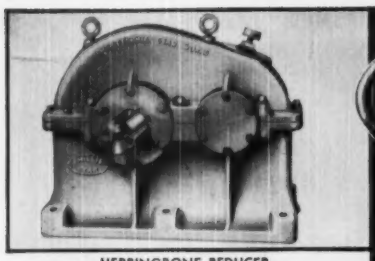
The "Utiliscope" is a product of the Capehart-Farnsworth Corporation and the Diamond Power Specialty Corp.

"Utiliscope" — Registered U.S. Patent Office

DIAMOND POWER SPECIALTY CORP.

LANCASTER, OHIO

Diamond Specialty Limited, Windsor, Ontario

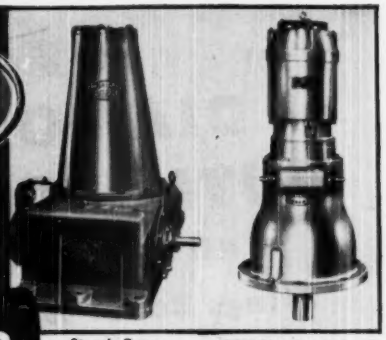


HERRINGBONE REDUCER

PHILLIE GEAR

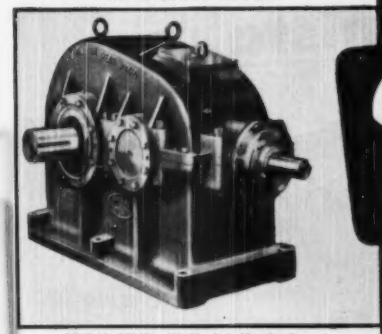
SPEED REDUCERS

One Name ALL TYPES

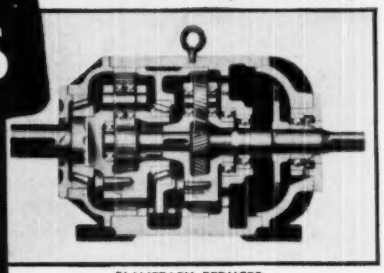


Steeple Type WORM REDUCER

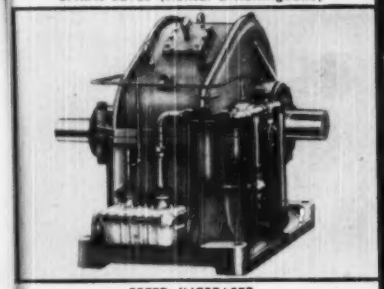
VERTICAL MotoReduceR (With Planetorque)



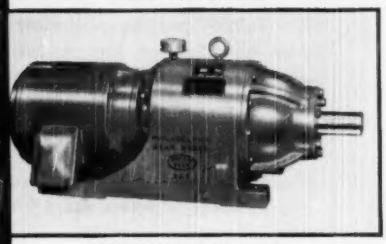
SPIRAL BEVEL (Helical & Herringbone)



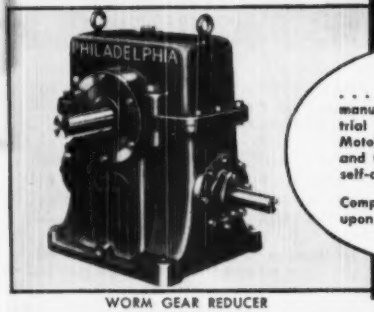
PLANETARY REDUCER



SPEED INCREASER



HORIZONTAL MotoReduceR



WORM GEAR REDUCER

. . . produced by a Pioneer in the design and manufacture of Gear Driven Reducers for industrial use. Also the well-known, self-contained MotoReduceR (in horizontal or vertical drives)—and the Philadelphia GearMotoR (a horizontal, self-contained reducer) for drives up to 60 H.P.

Complete catalogs on any type of Reducer, sent upon request on your Business Letterhead.

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Industrial Gears and Speed Reducers
LimiTorque Valve Controls

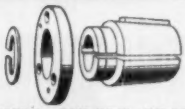
4 BIG ADVANTAGES!

ONE PIECE MOUNTING

Bushing and sheave go on together. One motion mounting. Alignment is easier. Sheave is on right first time.

POSITIVE DRIVE

Bushing is keyed to both shaft and sheave. No slipping. No sheared screws. No jammed bushings from bent screws.



FULL CIRCLE GRIP

Bushing split full length with separate collar. Grips shaft full length around full diameter. No forcing or distortion. Grip easily broken. No hammering.

WIDE SIZE RANGE

Magic Grip sheaves are available from 3" pitch diameter up. Style NC bushing for smaller sizes and Style C bushing for larger sizes.

MAGIC GRIP SHEAVE

YOU CAN MOUNT a *Magic Grip* sheave faster than any other sheave you can buy . . . and demount it just as fast. When you mount a *Magic Grip* sheave it runs true. It will not slip or jam. It always comes off easily.

Even if you don't change sheaves often, you should have *Magic Grip* sheaves on every drive to eliminate the possibility of shaft and bearing damage when ordinary sheaves are hammered or pried on or off.

WIDEST V-BELT LINE

Get everything you need for your V-belt drives from one reliable source. *Texrope* offers the broadest line of V-belts, standard and variable speed sheaves and speed changers in the industry. And you also get the extra engineering skill that comes from having more industrial V-belt installations than any other manufacturer.

Get your copy of the 144 page *Texrope* Pre-Engineered Drive Manual from your A-C Authorized Dealer or Sales Office or write for Bulletin 20B6956.

A-3022

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MILWAUKEE, WIS.

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Applied . . .
Serviced . . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.

MOTORS — ½ to 25,000 hp and up. All types.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

PUMPS — Integral motor and coupled types from ⅜ in. to 72 in. discharge and up.

Texrope and *Magic Grip* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

KINNEY VACUUM PUMPS

in ANOTHER New Power Plant

You can see them at the newly completed Russell Station of Rochester Gas and Electric Corporation. These Kinney Rotary Vacuum Pumps, type RVD 141415, remove non-condensible gases from the 25,000 sq. ft. condenser, partially shown in the upper left corner of the photo. The turbine, capable of 50,000 kw continuous output, is of the high-pressure, high-temperature type (1250 psig, 950°F).

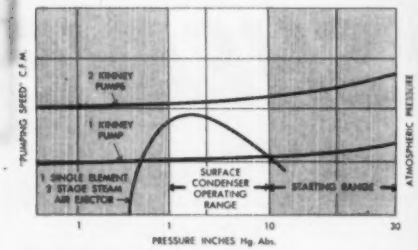
With throttle conditions like these, Kinney Rotary Vacuum Pumps help the modern steam generating station achieve its main objective: LOWER COST PER KW. Kinney Pumps totally eliminate the cost of controlling valves and ejectors at widespread locations. Here's control of condenser vacuum right at your fingertips . . . right at the central control panel.

Our Engineers will gladly show you how Kinney Rotary Vacuum Pumps minimize manpower costs and boost plant efficiency. Send for "Use of Mechanical Vacuum Pumps in Central Station Operation" — a detailed engineering report including actual installation drawings. Also ask for Kinney Bulletin V45, the complete story on Kinney Rotary Vacuum Pumps.

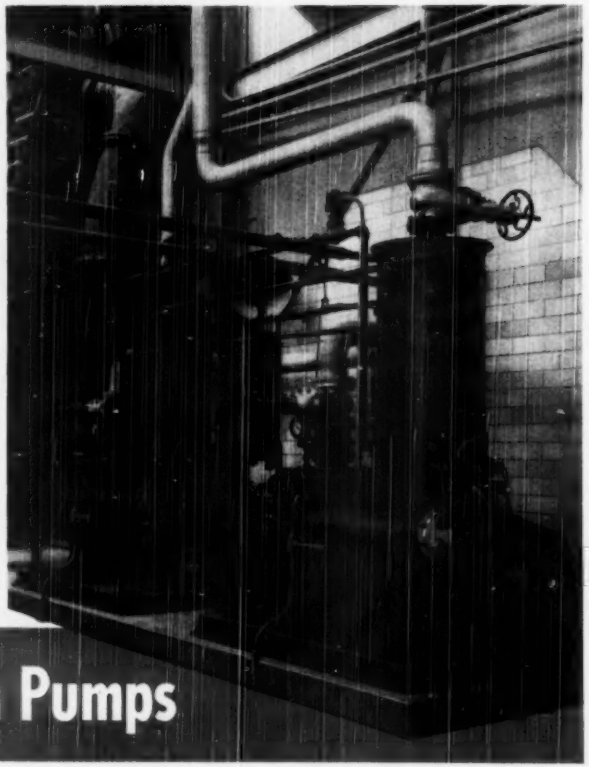
KINNEY MANUFACTURING COMPANY

3352 Washington St., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Houston, New Orleans, Philadelphia, Los Angeles, San Francisco, Seattle.

Foreign Representatives: General Engineering Co. (Radcliffe) Ltd., Station Works, Bury Road, Radcliffe, Lancashire, England . . . Horrocks, Roxburgh Pty., Ltd., Melbourne, C. I. Australia . . . W. S. Thomas & Taylor Pty., Ltd., Johannesburg, Union of South Africa . . . Novelectric, Ltd., Zurich, Switzerland.

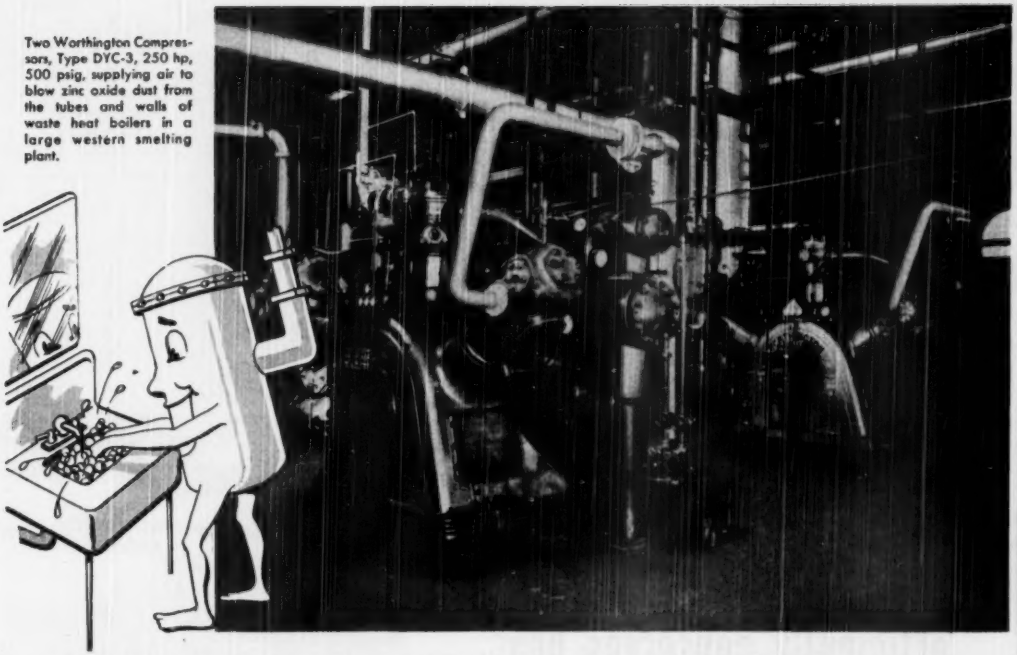


One of the big advantages of the Kinney Rotary Vacuum Pump is its relatively constant pumping speed over the entire range of pressures encountered in condenser service. Due to this uniform efficiency, the Kinney Pump is equally useful for testing air leakage in a new condenser, for bringing the condenser from atmospheric down to operating pressure, and for air removal under regular running conditions.



KINNEY Vacuum Pumps

Two Worthington Compressors, Type DYC-3, 250 hp, 500 psig, supplying air to blow zinc oxide dust from the tubes and walls of waste heat boilers in a large western smelting plant.



HOW TO DO A REAL SOOT-BLOWING JOB

... faster, better, at less cost!

Worthington Compressors Offer The Modern, Money-Saving Way To Make Your Boilers "Come Clean!"

Boiler cleaning by hand is a messy, makeshift carry-over from the horse-and-buggy era. Today, soot-blowing by compressed air is an economic necessity. Originally developed for low pressure boilers, air soot blowing has shown so many advantages over steam as a cleaning agent that its use has now extended to central stations and big power plants throughout the nation.

The reasons are plain. Air soot blowing saves fuel and feed-water make-up, while lessening the possibility of tube erosion. It uses inexpensive, low-temperature piping, with piping insulation eliminated. It reduces soot blower maintenance, provides a dryer blowing medium and a more effective means of slag removal. Finally, its complete adaptability to automatic control reduces costly manual operation throughout long years of service.

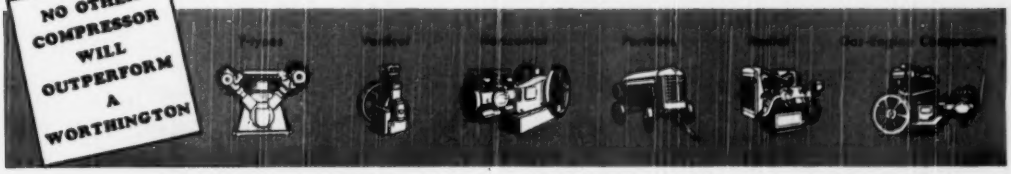
"Heart" Of Every Soot Blowing System

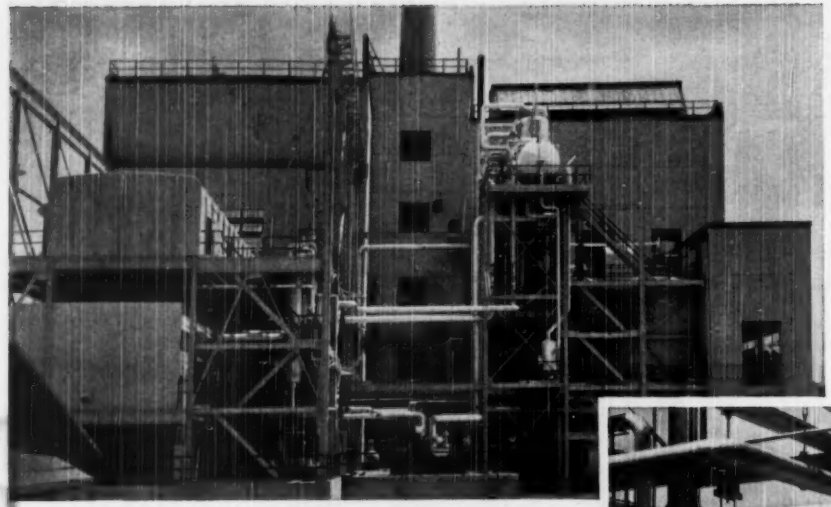
is its compressors . . . and Worthington builds these for every application . . . builds them to give you longer, quieter, smoother service — and air at lower cost. For further facts proving *there's more worth in Worthington*, write for booklet, "Worthington Compressors for Soot Blowing". *Worthington Pump and Machinery Corporation, Compressor Division, Buffalo, N. Y.*

XO-4

WORTHINGTON

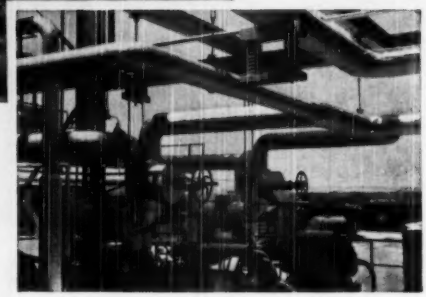
NO OTHER COMPRESSOR WILL OUTPERFORM A WORTHINGTON





Engineers,
Stone & Webster
Engineering Corp.,
Boston, Mass.

Insulation Contractor,
Willard A. Selle, Inc.,
El Paso, Texas



El Paso Electric Company efficiently conserves heat with K&M INSULATIONS

IN 1948, the El Paso Electric Company extended its Rio Grande Power Station to add 20,000 Kilowatts to the existing plant's 46,000 Kilowatt capacity. Boilers, piping, and other heated surfaces were insulated with K&M "Featherweight"® 85% Magnesia for temperatures up to 600° F., and with K&M Hy-Temp Combination for temperatures in excess of 600° F.

K&M "FEATHERWEIGHT" 85% MAGNESIA

for temperatures to 600° F.

For more than 60 years K&M "Featherweight" 85% Magnesia Insulation has demonstrated its ability to conserve heat efficiently in power plants, oil refineries, chemical plants, factories, steamships and hospitals. In fact, wherever exacting requirements must be maintained for temperatures up to 600° F., "Featherweight" 85% Magnesia can be used with complete confidence. It combines the high insulating qualities of basic carbonate of magnesia with clean asbestos fiber as the binding element.

K&M HY-TEMP COMBINATION

for temperatures to 1900° F.

K&M Hy-Temp Combination Insulation is used for temperatures in excess of 600° F. and up to 1900° F.; combines the greater insulation efficiency of "Featherweight" 85% Magnesia with the high heat resistance of Hy-Temp.

Your K&M Distributor will be glad to give you complete information on K&M "Featherweight" 85% Magnesia Insulation, K&M Hy-Temp Combination Insulation, or other insulations in the K&M line. Or, write us.

Nature made Asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

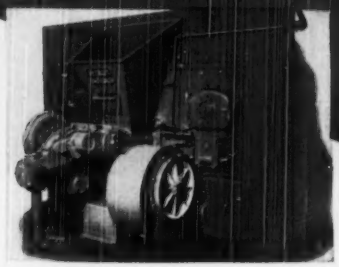
In Canada—ATLAS ASBESTOS CO., LTD., MONTREAL, TORONTO, WINNIPEG and VANCOUVER

K&M Self in asbestos ®

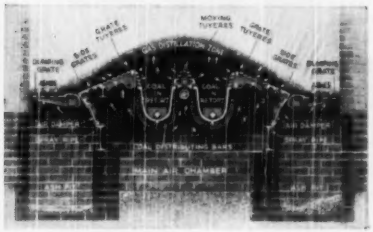
DETROIT LOSTOKER Single retort underfeed for all types and many sizes of boilers.

For any steam generator including package types

use DETROIT STOKERS



DETROIT UNISTOKER Single retort underfeed with Adjustable Coal Feed Control.



DETROIT DOUBLE RETORT A multiple retort—side cleaning underfeed for medium sized boilers. No basement required for ash removal.

We build stokers adaptable to any type or make of boiler or steam generator. No matter what you are considering we can furnish the ideal stoker—the one that fits the furnace and is best suited to your operating conditions.

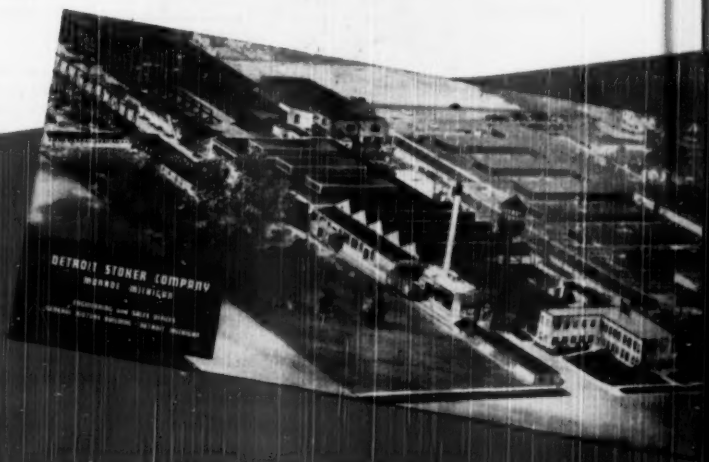
Detroit Stokers are successfully operating in thousands of boilers of different types, from firebox heating boilers to large steam generators of over 300,000 pounds of steam per hour, capacity. They are installed in private and public institutions, buildings, industrial and power plants, here and Abroad.

Assembled and Inspected In Our Plant Before Shipment

Each stoker that we design and build is assembled by experts in our plant and carefully inspected prior to shipment. You can't go wrong with Detroit.

Built to outlast the boilers that they serve, Detroit Stokers give you the best, most economical firing method for your needs. An informal discussion with one of our Engineers will cost you nothing and might save you a lot. May we hear from you?

DETROIT IMPROVED "Spreader" Stoker with overthrow Rotors. Burns wide range of fuels—lignite, bituminous, anthracite, coke breeze, sawdust, bagasse, etc.



DETROIT REVERSE STOKER Improved Spreader type. Grates move forward slowly and continuously, discharging the ash at the front. Available in capacities up to 300,000 pounds of steam per hour; has revolutionized fuel burning in the past six years.

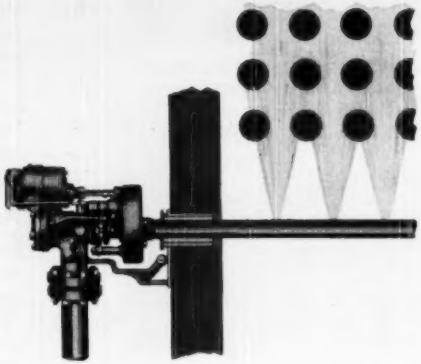
DETROIT STOKER COMPANY

DETROIT STOKERS

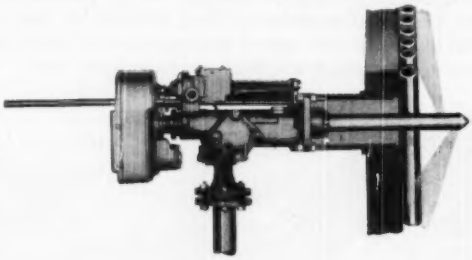
GENERAL MOTORS BUILDING, DETROIT 2, MICHIGAN

District Offices in Principal Cities . . . Works at Monroe, Michigan

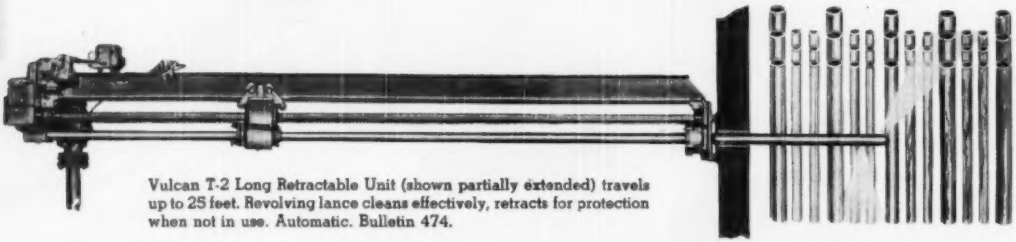
To Keep Your Automatically Look to



Vulcomatic Rotary Head, for fixed position rotary elements. Operated by push button at unit or from central control panel. Bulletin 482.



Vulcan Gun-Type Blower and Deslagger for automatic push button operation. 12- or 24-inch travel, as needed for your conditions. Bulletin 471.



Vulcan T-2 Long Retractable Unit (shown partially extended) travels up to 25 feet. Revolving lance cleans effectively, retracts for protection when not in use. Automatic. Bulletin 474.

VULCAN Automatic

BOILERS CLEAN or manually... VULCAN

You'll also cut cleaning costs no matter what size your boiler

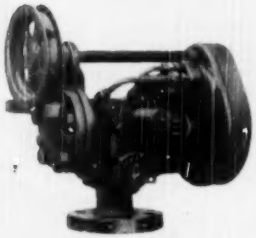
Whether you want automatic or manual soot blowing—using steam or air (or both) as the blowing medium—you'll get top performance, dependability and economy with Vulcan.

Your boilers—large or small—will be kept cleaner, their efficiency higher, because every Vulcan system is engineered for effective blowing in even the least accessible passes.

You'll burn less fuel per pound of steam generated. You'll save on maintenance, for Vulcans are built for long life, severe service.

Vulcan automatics include simple push button control at the units, or automatic sequential operation from a central control panel. Vulcan manual types offer the same basic blowing efficiency. Special designs for all types of air preheaters. Information on request.

Vulcan Gun-Type Blower and Deslagger for manual operation. Bulletin 471.



Vulcan Rotary Head for fixed position rotary elements. Bulletin 481.

Special types available for HRT and other small boilers.

Data on request.

VULCAN SOOT BLOWER DIVISION
Continental Foundry & Machine Company
DUBOIS, PENNSYLVANIA

DEPENDABILITY

THE TRUE MONEY-SAVER IN EVERY "BUFFALO" PUMP

OLD FAITHFUL GEYSER, spouting 12,000 gallons of scalding water 150 feet into the air every 66½ minutes, has been a byword for DEPENDABILITY to millions of tourists since its discovery in 1870.

"BUFFALO" PUMPS have an equally strong reputation for dependability with thousands of users. AND THIS MEANS ECONOMY IN EVERY PUMPING JOB! It means freedom from costly repairs—and, more important, freedom from long shutdowns, which are the big cost of pump failure.

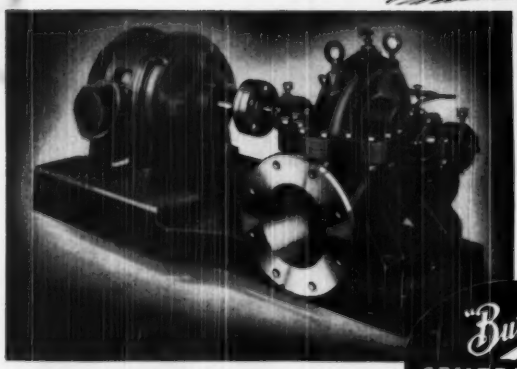
Why take a chance? Back up your liquid-moving jobs with "Buffalo" Pumps and enjoy the true economy in this dependability. Call on your nearby "Buffalo" Engineering Representative for complete information.

BUFFALO PUMPS INC.

488 Broadway, Buffalo, N. Y.

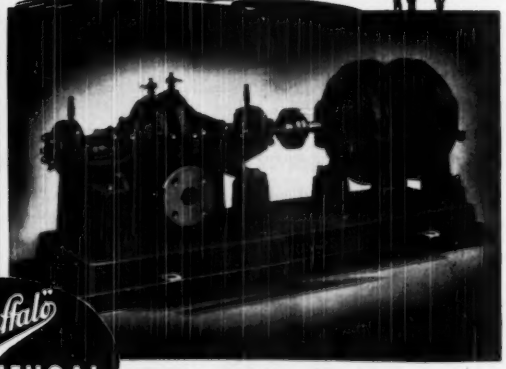
Canada Pumps, Ltd., Kitchener, Ont.

Branch Offices in All Principal Cities

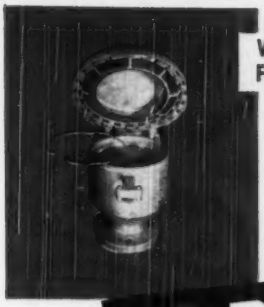


"Buffalo" Class "SL" Pumps are widely used on air conditioning systems and for other clear water service. Write for Bulletin 955-N and see their heavy-duty precision construction.

"Buffalo" CENTRIFUGAL PUMPS

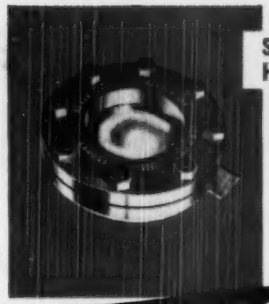


"Buffalo" Class "RR" Pumps for boiler feed and general service are popular with users for their efficiency and durability on the job—in models to deliver from 20 to 900 gpm at heads up to 1500 ft. Write for Bulletin 980-B.



VENT VALVE WITH FLAME ARRESTOR

Prevent flame propagation to your storage tanks. Protects against both overpressures and vacuum. Honeycombed construction of Arrestor acts automatically. Write for bulletin.



SAFETY HEADS

World-famous pressure relief "fuse". Provide full-throated, unrestricted relief instantly. For all fluids and gases. In a variety of sizes and pressure ratings.

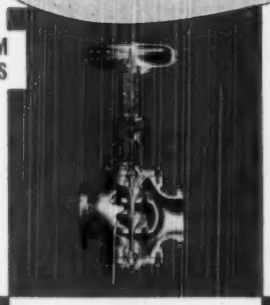
BS&B BUILDS IT RIGHT... for safety, efficiency, economy

Over 58 years' service to industry, an experienced skilled labor force, and rigorous research and testing stand behind every one of the hundreds of BS&B products. Send coupon for full information.

BLACK, SIVALLS & BRYSON, INC.
KANSAS CITY • TULSA • OKLAHOMA CITY
CABLE ADDRESS: BLACKSIV, NEW YORK

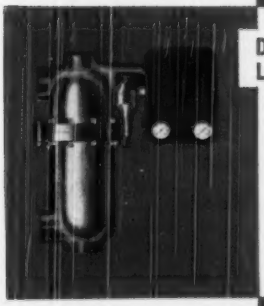
MOTOR DIAPHRAGM VALVES

High lift, accurate BS&B-Climax Type 86. Fully reversible, adaptable to scores of uses. Wide rangeability. Super-polished lower stem for minimum friction.



FEED WATER REGULATORS

Ample power (18 to 1) to operate against differentials across valve. Top and bottom guided, reversible valve body. For direct level control, remote or alarm operation. BS&B-Climax Type 149.



DISPLACEMENT LIQUID LEVEL CONTROLLERS

No leakage. No stuffing box. No friction problem! Ideal wherever liquid level control involves exacting and wide range control. Pictured with BS&B-Climax 1410 Control Pilot.

BOLTED STEEL TANKS

Sound, leak-free storage for fuels, water, liquids. Quickly, easily erected. Lasts for years. Demounts in a jiffy for moving. Sizes to meet any requirement.

SAFWALK WALKWAYS

Ladders, platforms, foot bridges, catwalks . . . fabricated to perfect fit on the site. Slip-proof decks, sturdy, rigid bracing. Easy to assemble. Serves for years. High salvageability on temporary structures.

BLACK, SIVALLS & BRYSON, INC. Sect. 1-6X-6
720 DELAWARE ST. KANSAS CITY, MO.

Rush me catalogs and prices on items checked:
☐ Vent Valve-Flame Arrestor ☐ SAFETY HEADS ☐ Motor Diaphragm Valves ☐ Feed Water Regulators ☐ Displacement Liquid Level Controllers ☐ Bolted Steel Tanks ☐ Safwalk Walkway.

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HERE'S WHY YOU SHOULD BRING YOUR STEAM PROBLEMS TO STRONG

1. Over 40 years' specialized *engineering experience* in all types of steam problems;

2. Completeness of the STRONG line gives you the added advantage of choosing *exactly* the *right* size and type of steam specialty to meet your *individual* need;

3. Acceptance of STRONG products as *standard* by outstanding engineering firms and large users;

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Insist on genuine STRONG steam specialties and repair parts for reduced maintenance and increased production. A large staff of STRONG factory-trained field engineers is at your service. Bring your next steam problem to STRONG*.

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STEAM SPECIALTIES

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Complete, up-to-date specifications and prices on entire Strong line including steam and lifting traps, reducing valves, separators, strainers, continuous blowdown valves, and engine stops. Valuable tips on piping and trap sizing, etc. Write for Catalog 68 today!

A Single Responsibility for Pumping Performance!

FOR EASTERN UTILITY—one of three 5x5, 12 stage Allis-Chalmers Barrel Boiler Feed Pumps rated 227,000 lbs/hr (480 gpm) 1750 lbs/hr 0° G., driven by 3575 rpm, 800 hp Allis-Chalmers squirrel-cage motors.

BEAT THIS KIND OF COMBINATION — *at any price:* An excellent quality boiler feed *pump,* high reliability *motor,* and complete *control*—all Allis-Chalmers built and backed!

You save time and money in negotiation, installation and operation.

ASK THE POWER PLANT USER!

Regardless of which of the 3 Allis-Chalmers boiler feed pumps described at right you finally settle on, here's the kind of *maintenance* operational record you can expect and get when you invest in A-C:

EASTERN UTILITY, 735 gpm pumps, "after 45,000 hours no measurable wear on shaft sleeves, rings or internal parts."

MIDWEST UTILITY, 6 x 4, 5-stage pumps, "After 82,000 hours not .001 inch wear on any internal part."

OHIO UTILITY re-ordered three 1800 p.s.i. pumps on strength of this performance — "Only .002 inch wear on rings after 8 years operation on pumps."

And on the motor end, a midwest Utility reports, "in over 20 years of uninterrupted service with three, 800 hp, two-pole motors driving boiler feed pumps we've had to order replacement parts just twice at a total cost averaging less than $12 a year!"

CHOOSE FROM 3 TYPES PUMPS:

☛ Barrel-type, for larger steam stations operating against the higher pressures, 1200 to 2500 lbs; 300 to 2000 gpm.

☛ "Doubleton," for pressures between 1200 and 1800 p.s.i.

☛ Standard Type "M," for pressures usually under 1200 p.s.i.

BENEFITS OF "PACKAGE" INVESTMENT

Yes, for *quality* performance in *your* power plant, get hold of an Allis-Chalmers pump application engineer today. He's an *expert* at figuring requirements at the economy point. And he's ready to show you *where* and *how* a complete Allis-Chalmers "Power Plant Pumping Package"... pumps, motors, control, will keep you ahead in time, performance, and freedom from worry. A-3040

ALLIS-CHALMERS, 952A SO. 70 ST.
MILWAUKEE, WIS.

ALLIS-CHALMERS

Operating Cost Savings

ENGINEERED INTO PIPING BY NAVCO

Careful and expert preliminary engineering work by Navco Engineers, in addition to employing the most modern fabricating and erection methods, are your guarantee of operating savings.

Consult Navco for just a Pipe Bend, or a complete Piping System.

- ★ **Assured Safety**
- ★ **Efficient Operation**
- ★ **Minimum Fuel Costs**
- ★ **Low Maintenance**
- ★ **Long Trouble-Free Life**

NAVCO PIPING

NATIONAL VALVE & MANUFACTURING COMPANY • PITTSBURGH, PA.

NEW YORK • CHICAGO • CLEVELAND • BOSTON • ATLANTA • TULSA • BUFFALO • CINCINNATI

Armstrong offers you expert engineering advice.

Armstrong offers you skilled workmanship.

What to look for when you buy insulation

When you sign a contract for heat insulation, most of the money you agree to spend is for labor. Almost invariably the cost of the material is less than 50% of the total. When buying a heat insulation job, you should be at least as careful in your selection of a contractor as you are in your choice of materials.

The best way to get full value for your money is to hire a reliable contractor that has earned a reputation for superior workmanship. We believe that the Armstrong contracting organization meets these requirements.

If you want or need it, you also get expert engineering advice at no extra cost. Armstrong sales engineers are qualified to help you write the proper specifications and to assist you with insulation design problems.

If your job involves any highly specialized heat transfer or materials application problems, the scientists of Armstrong's Research Laboratories are always ready to supply the answers.

An Armstrong contract also gives you close scheduling and supervision by an experienced construction superintendent. He works out material delivery and labor schedules and keeps the job running smoothly.

You get on-the-job supervision by a foreman who is a full-time, carefully trained Armstrong employee. When your work is completed, you have the assurance that the full resources of a large and responsible organization stand behind it. It must be satisfactory in every respect.

For the money you spend for materials, Armstrong offers well made, efficient insulations. We distribute and apply Keasbey and Mattison products, a complete, top-quality line.

For a complete story of the operation of Armstrong's contracting organization and the services it offers you, write today for the free booklet, "People Make A Good Insulation Job." Armstrong Cork Company, 7000 Mulberry St., Lancaster, Pennsylvania.

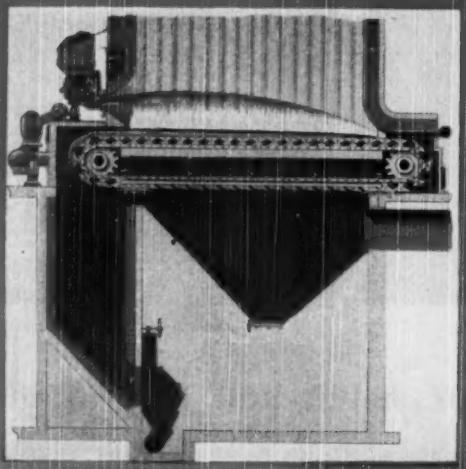
ARMSTRONG'S INDUSTRIAL INSULATIONS

MATERIALS - INSTALLATION

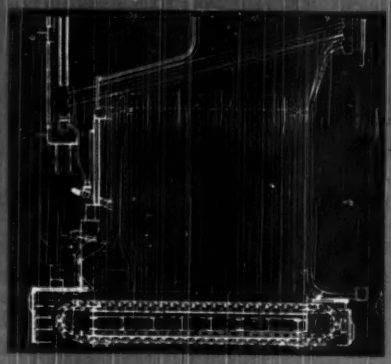
FOR ALL TEMPERATURES FROM 300°F. BELOW ZERO TO 2800°F.

Firite SPREADER TYPE

HOFFMAN



Hoffman spreader-type stokers may be installed with continuous ash discharge grates discharging to either the front or the rear of the setting, depending upon local conditions.



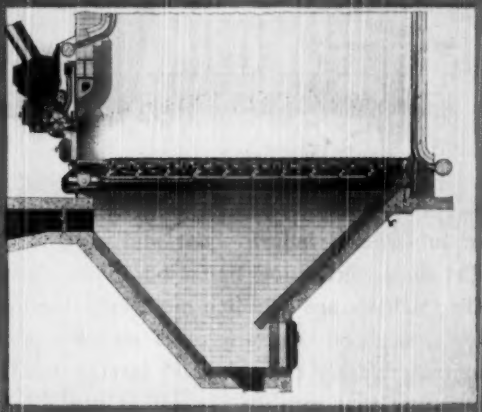
Qualified engineering representatives are available in strategic centers wherever coal is burned industrially, to cooperate with your consulting engineers or plant engineering staff.

New York.....165 Broadway, WO. 2-5744 • Chicago, Ill.....307 N. Michigan Ave., CEN. 6-7084
Baltimore, Md.....13 West 25th St., TU. 5885 • Boston, Mass.....120 Boylston St., DEV. 8-9453
Columbus, Ohio.....1570 Bryden Rd., EV. 2570 • Indianapolis, Ind...1746 N. Tacoma Ave., FR. 3496
Milwaukee, Wisconsin..2750 S. 46th St., GR. 2-7081 • Syracuse, New York...520 Robinson Road, 6-9752

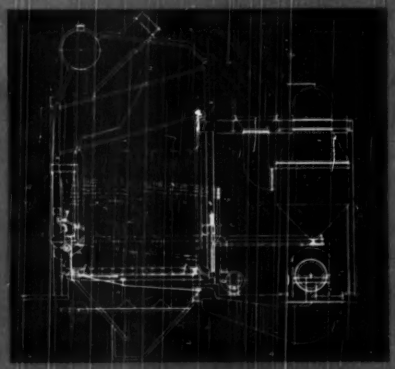
HOFFMAN COMBUSTION

General Offices: MARQUETTE BUILDING, DETROIT 26, MICHIGAN

STOKERS



Dumping grates may be operated by steam or compressed air, or may be operated manually on the smaller sizes.



Write for a list of local references—see the Hoffman stokers in your neighborhood—talk to the operators and ask the management about their records for low-cost steam and low maintenance. Investigate before you buy.

Philadelphia, Pa. . . . . 3707 Walnut St., EV. 2-5525
Buffalo, New York . . . . . 54 N. Calvin St., DEL. 5141
Nashville, Tenn. . . . . 123 Third Ave. No., 6-0181
Richmond, Virginia . . . . 405 East Franklin St., 7-0831
Cleveland, Ohio . . . . 1453 Lombardy, LAKE 1-2553
Denver, Colorado . . . . . 512 Tabor Bldg., AC. 3573
Seattle, Washington . . . . 2214 14th S.W., SEN. 4175
Salt Lake City, Utah . . . . . 267 W. First So., 3-5521

ENGINEERING COMPANY

Works: FAIRMONT, W. VA. and DETROIT, MICH.

WHEN YOU PURIFY OIL

REMOVE BOTH DIRT AND WATER

Turbines require protection from two different causes of lubrication failure — ***dirt*** and ***water.*** Removal of dirt alone merely does half a job. That is why De Laval Oil Purifiers are so much more effective for maintaining turbine oil than any other means available. They instantaneously remove solid foreign matter and any moisture that may be present as well.

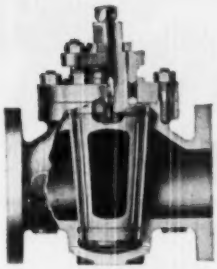
It is extremely important to get this ***double*** protection, for water is the real trouble-maker as often as not. For example, condensate in oil leads directly to the formation of sludge, and of course there is always the possibility of a major water leak which might lead to serious emulsification and very real trouble.

De Laval Oil Purifiers do not remove oil-soluble additives; action within the centrifuge is entirely mechanical.

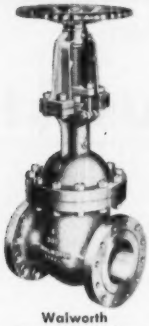
THE DE LAVAL SEPARATOR COMPANY
165 Broadway, New York 6 427 Randolph St., Chicago 6
DE LAVAL PACIFIC CO., 61 Beale St., San Francisco 5
THE DE LAVAL COMPANY, Limited, Peterborough, Ont.

DE LAVAL
LUBRICATING OIL PURIFIERS

• VALVES
• PIPE FITTINGS



Walworth
Lubricated Plug Valve



Walworth
Steel Gate Valve

Walworth
Iron Body Gate Valve

Walworth
"500 Brinell" Bronze Globe Valve

Walworth
Iron Body Saddle Gate Valve

Walworth
Cast Steel Flanged Fittings

Walworth manufactures a *complete line* of valves and pipe fittings: all made to the highest standards of quality, both as to dimensional accuracy and metallurgical properties. In design, construction, and performance, Walworth products reflect more than a century of experience in the manufacture of quality valves and fittings.

Your Walworth distributor will give you full information on the *complete line* of Walworth steel, iron, and bronze, and special alloy valves and pipe fittings; also Walworth Lubricated Plug Valves, and Walseal* valves, fittings and flanges. Ask for this information today.

*Patented—Reg. U. S. Pat. Off.

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CENTRIFUGAL PUMPS
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ELECTRIC MOTORS
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Your nearest Sinclair Supplier will gladly arrange for lubrication counsel or you may write to Sinclair Refining Company, 630 Fifth Avenue, New York 20, New York

Now... Yoloy Pipe

CONTINUOUS WELD

for use where corrosion is a problem

FOR fifteen years, Yoloy steel has been manufactured as Seamless pipe, sheets, plates and structural members. Yoloy is used in the oil, mining, railroad, chemical, trucking and other industries where resistance to corrosion and abrasion are a problem and lighter weight construction is important. Now this same unique nickel-copper low-alloy steel is available as continuous weld pipe.

Yoloy continuous weld pipe has these outstanding characteristics:

1. It is easy to weld,
2. It bends and fabricates readily,
3. Its tensile strength is high,
4. It is resistant to abrasion,
5. Its resistance to shock and vibration is high,
6. It is high in corrosion resistance.

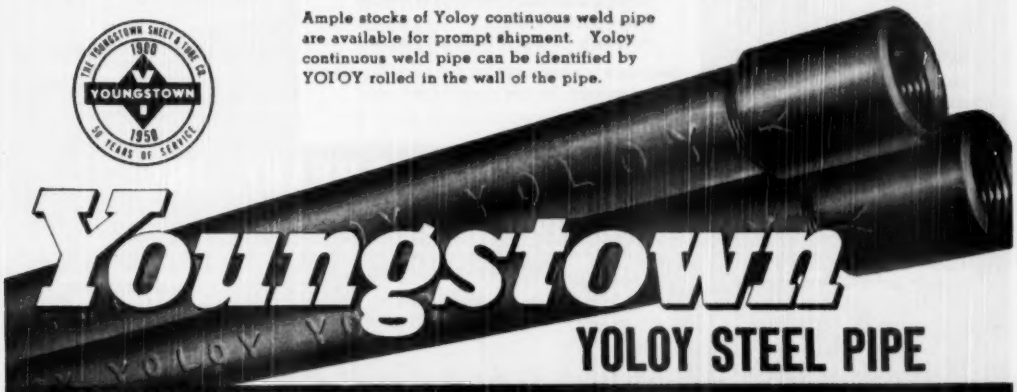
Yoloy has an atmospheric corrosion resistance from four to six times that of regular carbon steels. Its resistance to many other corrosive elements likewise is high, making Yoloy pipe particularly well adapted for use in the railroad, oil, mining and chemical process industries. Youngstown Yoloy continuous weld pipe also affords distinct advantages for use where piping is concealed in industrial plants, commercial buildings and residences.

For example, at a sewage plant, Yoloy pipe immersed in the sour sludge of a digester was found to be in good condition after nearly four years. When repairs were made to replace a mild steel tripod holding the pipe after only one year's service, it was found that the tripod had been almost entirely eaten up by the acid sludge.

Yoloy continuous weld pipe installed in brine lines from the wells at a salt plant is still in service after several years. Pipe previously used in this same line had to be replaced 3 or 4 times a year.

Other examples of the unusual service given by Yoloy pipe can be cited. For further information, write or phone the Youngstown District Sales Office nearest you.

Ample stocks of Yoloy continuous weld pipe are available for prompt shipment. Yoloy continuous weld pipe can be identified by YOLOY rolled in the wall of the pipe.



Youngstown

YOLOY STEEL PIPE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices — Youngstown 1, Ohio

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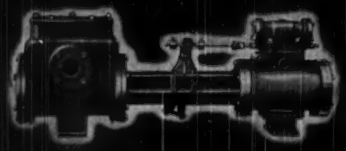
Warren Stock Pump
Type 5-SOD-15 . . . 12" suction nozzle



Warren Steam Heat
Vacuum Pump

Warren Horizontal Duplex
Hydraulic Pump

WARREN PUMPS

Maintain efficiency
Operate at low cost
Are long-lived

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Single and multi-stage
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Capacities: 0 to 50,000 G. P. M.
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Casings: Horizontal or Vertical Split, cast iron or bronze
Bearings: Sleeve or ball-bearing

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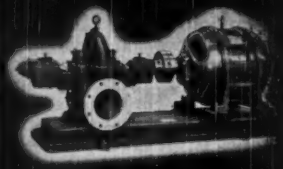
Single and Duplex Outside Packed Plunger
Single, Duplex and Compound Hydraulic
Steam Heat Vacuum
Automatic Pump and Receiver, etc., etc.,

Send your pumping problem to us, our Engineers will recommend the right pump for the job.

P 14

Warren Type "L" Single-Stage
Single-Suction Liquor Pump



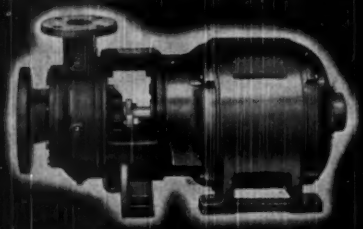
Warren Double Suction Pump
Single Stage

Warren Type DBL, Single-Stage
Double Suction, Centrifugal Pump

Warren Two-Stage Volute
Centrifugal Pump

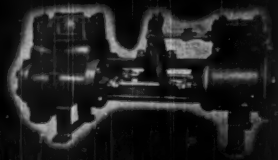
WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS

Warren Type TM, 4 and 6 Stage
Centrifugal Pump



Warren "Compacunit"—4 Types—42 Sizes

Warren Horizontal "Realwear"
Duplex Piston Pump



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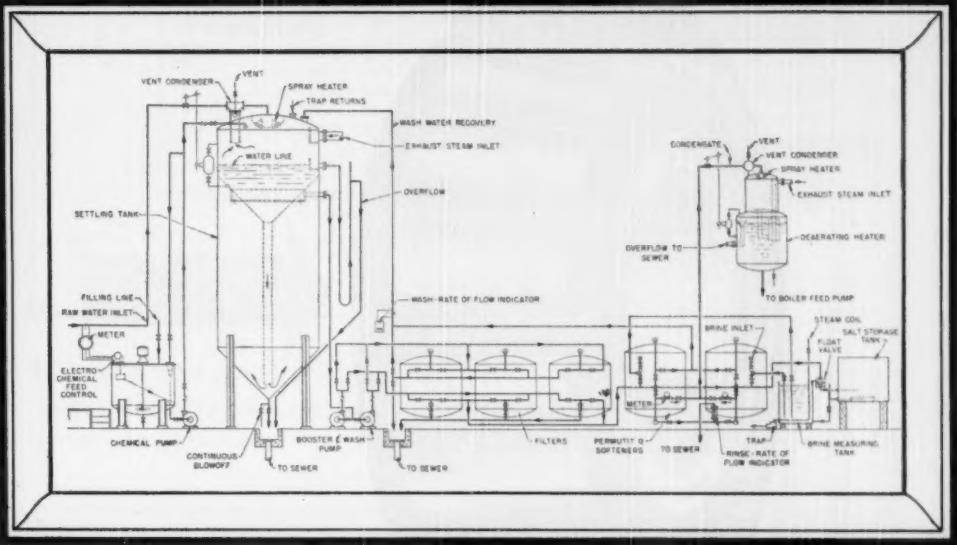
NEW HOT ZEOLITE PROCESS



—reduces effluent from Hot Lime Soda Softener to ZERO HARDNESS

Some good reasons why you'll want this Amazing Process for your plant:

- Chemical costs are lower
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- No need for acid feeding to prevent deposits in high stage heaters and economizers.

Here is the best way yet devised to produce water low in alkalinity and silica . . . and with all hardness removed!

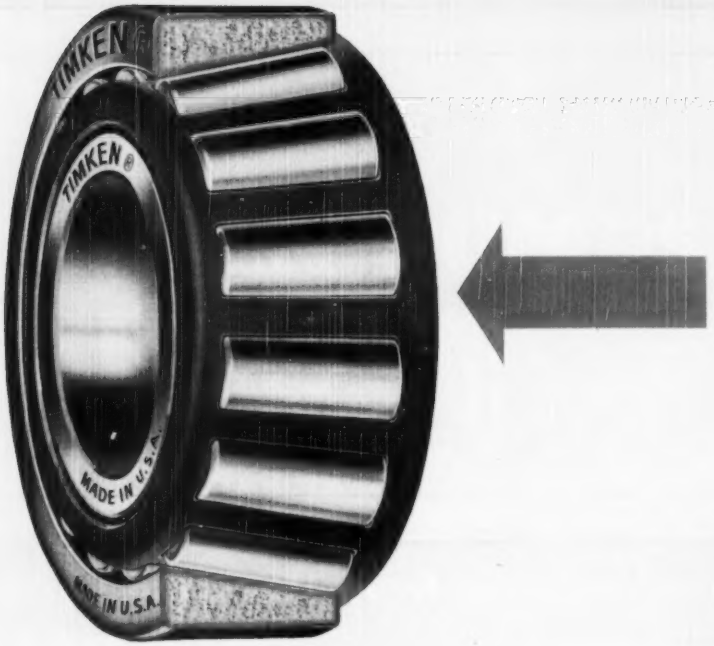
This has been made possible by the development of Permutit Q, an ion exchanger which will withstand boiling water with a pH over 10. Experience shows it is not seriously affected under such operating conditions, even after 1300 regeneration cycles.

Treatment by Permutit Q is more economical than phosphate and at the same time it reduces CO_2 in the steam. Easily controlled, this new process softens water completely without regard to variable raw water hardness.

A new bulletin giving more information about this process is available. Write for your free copy to The Permutit Company, Dept PM-6, 330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

Permutit®

WATER CONDITIONING HEADQUARTERS FOR OVER 37 YEARS



How TIMKEN® bearings take an extra load off your mind

MOST bearings carry radial loads *only* with extra bearings or washers needed to handle thrust loads. But not with Timken® bearings! Due to their tapered construction, Timken bearings take *both* radial and thrust loads in any combination. Your designs can be simplified, space saved.

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Remember that Timken bearings in your product add a valuable sales feature. They build greater acceptance for your product among customers. So always look for the trade-mark "Timken" on the bearings you buy. And when buying new machinery, be sure it's Timken bearing equipped. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

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TAPERED ROLLER BEARINGS

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NEW LARGE INDUCTION MOTOR DESIGN

Cuts Servicing Costs

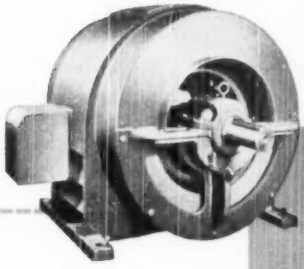
It costs money to wrestle motors. For motors are a long-term investment . . . servicing and inspection are important costs. That's why Westinghouse has introduced a new, radically different, motor design. It makes inspection quick and simple.

Readily accessible split-sleeve bearings reduce inspection to a matter of minutes. There's no top half of the bearing bracket to remove . . . only the top half of the bearing housing. Bearings can be removed, by hand. Light, sturdy end covers and air shields are quickly removable for complete inspection, cleaning or other servicing requirements. They're light—require no crane—can be removed by hand.

Furthermore, installation costs are lowered. New Westinghouse Motors are built of heavy steel, welded to form a rigid unit. The result: motors that are smaller and lighter . . . easier to handle . . . require less space.

These and many other desirable improvements are offered in each of the various enclosure types—dripproof, splashproof or totally-enclosed fan-cooled—frames 30 and larger, squirrel-cage or wound rotor.

Westinghouse engineers will be glad to consult with you at any time. Get the facts now for immediate use or future requirements. Ask your local Westinghouse representative for complete information or write direct. Address: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-21555



Shown here is the new **Type CSF** *Squirrel-Cage Motor, Open, Dripproof. There's a Westinghouse Motor for each of the many different power station requirements . . . a right motor for every job.*

Westinghouse

LARGE INDUCTION MOTORS

There's a Maintenance Threat in all these services...combat it with
BYERS WROUGHT IRON PIPE !!!!

If you have any of these piping services in prospect—watch out for corrosive attack! It's always a threat, and failure to use proper safeguards may mean early and costly maintenance.

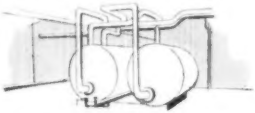
Byers Wrought Iron pipe has made some outstanding records for durability in every one of these applications. We'll be glad to give you specific examples on request.

RADIANT HEATING

Wrought iron is now serving in thousands of installations, of all sizes. The superior durability of the material is demonstrated by its comparative service in skating rinks—where conditions are even more severe.

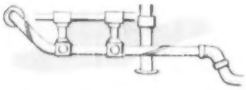
SNOW MELTING

Widely used not only because of its corrosion resistance, but because its mechanical strength protects it from crushing during installation and use.



STEAM RETURN LINES

Condensate is always aggressive. Wrought iron return lines, properly installed, have proven remarkably effective in eliminating excessive repairs and replacements.



WASTE AND VENT LINES

Corrosive sewage gases quickly gnaw away any vulnerable material. Surveys of old buildings reveal wrought iron still serving after periods of up to 50 years.

CONDENSERS

Users have reported service life of 30—40 and even 50 years from wrought iron condensers. One study of 32 condensers showed wrought iron served over twice as long as low first-cost material.

AIR CONDITIONING

Many services are highly corrosive . . . and replacements are difficult and expensive. Wrought iron has been used to safeguard operations in dozens of large installations.

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Whether in trench or tunnel, corrosion is always a hazard to underground lines. Here, again, users have reported wrought iron service of over half a century.

The corrosion resistance of wrought iron comes from its unique composition and structure, which halts and disperses attack. Ask for bulletins on any services in which you are interested.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

CORROSION COSTS YOU MORE THAN WROUGHT IRON

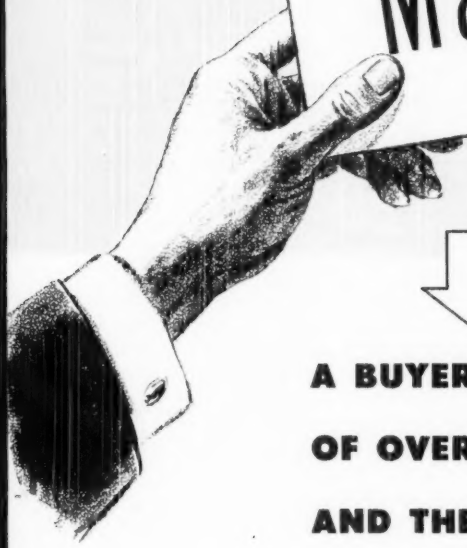
BYERS

GENUINE WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

Directory of Manufacturers



A BUYERS' GUIDE OF OVER 700 POWER FIELD PRODUCTS AND THE MAKERS OF EACH.

Use this directory by checking *first* the noun in the listing; look under "Strainers, Oil," not "Oil Strainers." Company names and addresses are listed alphabetically under each product heading.

To get additional information about any product listed or advertised send in the coupon cards on pages 181, 203

USE THIS DIRECTORY TO LOCATE EQUIPMENT SOURCES

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(See Dampers, Vibration)

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Griscom-Russell Co. 285 Madison Ave. N. Y. 17, N. Y.
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Ingersoll-Rand Co. 11 Broadway, N. Y. 4, N. Y.
Johnson Corp. 865 Wood St. Three Rivers, Mich.
Joy Mfg Co. Dept 5, Oliver Bldg. Pittsburgh 22, Pa.
Lummus Co. 259 W 14th St. N. Y. 17, N. Y.
Murray, D J Mfg Co. Wausau, Wis.
Niagara Blower Co. 405 Lexington Ave. New York 17, N. Y.
Patterson-Kelley Co. Inc. 129 Burson St. East Stroudsburg, Pa.
Peabody Engrg Corp. 580 Fifth Ave. N. Y., N. Y.
Ross Heater & Mfg Co Inc. 1407 West Ave. Buffalo 13, N. Y.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22, Pa.
Sims Co. 1402 E 18th St. Erie, Pa.
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Young Radiator Co. 709 S Marquette St. Racine, Wis.

AIR COMPRESSORS
(See Compressors)

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Air & Refrigeration Corp. 475 Fifth Ave. New York 17, N. Y.
Bahnson Co. 1001 S Marshall St. Winston-Salem, N. C.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Curtis Mfg Co. 1905 Kienlen Ave. St. Louis 20, Mo.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
McQuay Inc. 1600 Broadway St. N E. Minneapolis 13, Minn.
Niagara Blower Co. 405 Lexington Ave. NYC 17, N. Y.
Ready Power Co. 11231 Freud Ave. Detroit, Mich.
Ross, J O Engrg Corp. 350 Madison Ave. New York 17, N. Y.
Sturtevant, Div Westinghouse Elec Corp. Hyde Park, Boston 36, Mass.
Surface Combustion Corp. 2375 Dorr St. Toledo 1, Ohio
Trane Co. LaCrosse, Wis.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Worthington Pump & Machy Corp. Harrison, N. J.
York Corp. York, Pa.
Young Radiator Co. 709 S Marquette St. Racine, Wis.

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Fedders-Quigan Corp. 57 Tonawanda St. Buffalo 7, N. Y.
Frick Co. W Main St. Waynesboro, Pa.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
Philco Corp. O & Tioga Sts. Phila, Pa.
Ready Power Co. 11231 Freud Ave. Detroit, Mich.
Sturtevant, Div Westinghouse Elec Corp. Hyde Park, Boston 36, Mass.
Trane Co., La Crosse, Wis.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Worthington Pump & Machy Corp. Harrison, N. J.
York Corp. York, Pa.

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Air & Refrigeration Corp. 475 Fifth Ave. New York 17, N. Y.
American Blower Corp. Detroit 32, Mich.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Curtis Mfg Co. 1905 Kienlen Ave. St. Louis 20, Mo.
Frick Co. W Main St. Waynesboro, Pa.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
McQuay Inc. 1600 Broadway St. NE. Minneapolis 13, Minn.
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Trane Co. LaCrosse, Wis.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Worthington Pump & Machy Corp. Harrison, N. J.
York Corp. York, Pa.

ALARMS, FLAME FAILURE
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Combustion Control Corp. 77 Broadway, Cambridge 42, Mass.
Ess Instrument Co. 96 S Washington Ave. Bergenfield, N. J.
Lientz, B P, Mfg Co. 210 W 8th St. Kansas City, Mo.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5, Ill.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 4th Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26
Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

ALARMS, FLOW
Autocall Co. 1047 Warden Ave. Shelby, Ohio
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barton Instr Corp. 1429 S Eastern Ave. Los Angeles 22, Calif.
Bristol Co. Waterbury 91, Conn.
Brooks Rotameter Co. Box 432, Lansdale, Pa.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Henssey Co. 202½ Water St. Watertown, Wis.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
McDonnell & Miller, Inc. 3500 N Spaulding Ave. Chicago 18, Ill.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Nugent, Wm W. & Co Inc. 402 N Hermitage Ave. Chicago 22, Ill.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago
Pennsylvania Industrial Instr Co. 3116 N 17th St. Philadelphia, Pa.
Richardson Scale Co. Clifton, N. J.
R-S Products Corp. 4530 Germantown Ave. Phila 44, Pa.
Schaub, Fred H Engrg Co Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22, Pa.
U. S. Gauge Div. American Machine & Metals Inc. Sellersville, Pa.

ALARMS, LIQUID LEVEL
Autocall Co. 1047 Warden Ave. Shelby, Ohio
Automatic Control Co. 1005 University Ave. St Paul 4, Minn.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barton Instrument Corp. 1429 S Eastern Ave. Los Angeles 22, Calif.
Bristol Co. Waterbury 91, Conn.
Clark Controller Co. 1146 E 152nd St. Cleveland 10, Ohio
Climax Controls Div. Black, Sivalls & Bryson Inc. Box 1529, Tulsa 1, Okla.
Combustion Control Corp. 77 Broadway, Cambridge 42, Mass.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Ess Instrument Co. 96 S Washington Ave. Bergenfield, N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Huyette, Paul B. Co Inc. 401 N Broad St. Phila. 8, Pa.
Inferno Co. 115 Ricou St. Shreveport, La.
Jerguson Gage & Valve Co. 87 Fellsway, Somerville, Mass.
Johnson Corp. 865 Wood St. Three Rivers, Mich.
Kieley & Mueller Inc. 2013 43rd St. North Bergen, N. J.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5, Ill.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill.
McDonnell & Miller, Inc. 3500 N Spaulding Ave. Chicago 18, Ill.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Northern Equipment Co. 1945 Grove Drive, Erie, Pa.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26, Ill.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Philadelphia, Pa.
Photoswitch Inc. 77 Broadway, Cambridge 42, Mass.
R-S Products Corp. 4530 Germantown Ave. Phila 44, Pa.
Reliance Gauge Column Co. 5902 Carnegie Ave. Cleveland 3, Ohio
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Ripley Co. Factory St. Middletown, Conn.
Schaub, Fred H Engrg Co Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Servo-Tek Products Co. Inc. 4 Godwin Ave. Paterson 1, N. J.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.
U. S. Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.

ALARMS, PRESSURE
Autocall Co. 1047 Warden Ave. Shelby, Ohio
Automatic Control Co. 1005 University Ave. St Paul 4, Minn.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Edison, Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Fulton Sylphon Div. Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2, Conn.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26, Ill.
Penn Electric Switch Co. Goshen, Ind.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Ripley Co. Factory St. Middletown, Conn.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.
Union Diesel Engine Co. 2200 E 7th St. Oakland 6, Calif.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.

ALARMS, TEMPERATURE
Assembly Products Inc. Chagrin Falls, Ohio
Autocall Co. 1047 Warden Ave. Shelby, Ohio
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Burling Instrument Co. Dept P. 253 Springfield Ave. Newark 3, N. J.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Edison, Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Fenwal Inc. 240 Pleasant St. Ashland, Mass.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Fulton Sylphon Div. Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
H-B Instrument Co Inc. 2633 Trenton Ave. Phila 25, Pa.
Illinois Testing Labs. 420 S LaSalle St. Chicago 5, Ill.
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15, Wis.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26, Ill.
Penn Electric Switch Co. Goshen, Ind.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Ripley Co. Factory St. Middletown, Conn.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Union Diesel Engine Co. 2200 E 7th St. Oakland 6, Calif.

U S Gauge Div, American Machine & Metals Inc, Sellersville, Pa.
Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

ALLOYING MATERIALS

Aluminum Co of America, 1987 Gulf Bldg, Pittsburgh, Pa.
Bridgeport Brass Co, 30 Grand St, Bridgeport 2, Conn.
Electro Alloys Div, American Brake Shoe, Elyria, Ohio
Electro Metallurgical Div, Union Carbide & Carbon Corp, 30 E 42nd St, New York 17, N. Y.
International Nickel Co, Inc, 67 Wall St, New York 5, N. Y.
Monsanto Chemical Co, 1700 S Second St, St Louis 4, Mo.

AMMETERS, INDICATING

Assembly Products Inc, Chagrin Falls, Ohio
Associated Research Inc, 3758 W Belmont Ave, Chicago 3, Ill.
Burlington Instrument Co, 203 N 3rd St, Burlington, Iowa
Columbia Electric Mfg Co, 4519 Hamilton Ave, Cleveland 14, Ohio
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Ferranti Electric Inc, 30 Rockefeller Plaza, New York 20, N. Y.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, NYC 17, N. Y.
Hanson-Van Winkle-Munning Co, Church St, Matawan, N. J.
J-B-T Instruments Inc, 441 Chapel St, New Haven 8, Conn.
Marion Electrical Instrument Co, Stark Street Gate, Manchester, N. H.
Roller-Smith, 1756 W Market St, Bethlehem, Pa.
Stewart-Warner Corp, 1826 Diversey Pkwy, Chicago 14, Ill.
Sticht, Herman H Co, 27 Park Place, New York 7, N. Y.
U S Gauge Div, American Machine & Metals, Sellersville, Pa.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Weston Electrical Instrument Corp, 614 Frelinghuysen Ave, Newark 5, N. J.
Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

AMMETERS, RECORDING

Bristol Co, Waterbury 91, Conn.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Esterline-Angus Co, 1201 Main St, Indianapolis 6, Ind.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, NYC 17, N. Y.
Hanson-Van Winkle-Munning Co, Church St, Matawan, N. J.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

ANALYZERS, CO, PORTABLE

Bacharach Industrial Instrument Co, 7000 Bennett St, Pittsburgh, Pa.
Burrell Corp, Fifth Ave, Pittsburgh 19, Pa.
Cambridge Instr Co, 3007 Grand Central Terminal, N. Y. 17, N. Y.
Defender Instrument & Regulator Co, 815 Clark Ave, St Louis 2, Mo.
Dwyer, F W, Mfg Co, 317 S Western Ave, Chicago, Ill.
Ellison Draft Gage Co, 214 W Kinzie St, Chicago 10, Ill.
Engelhard, Charles, Inc, 900 Passaic Ave, East Newark, N. J.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Hays Corp, 742 E 8th St, Michigan City, Ind.
Hotstream Heater Co, 2363 E 69th St, Cleveland 4, Ohio
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Uehling Instrument Co, 473 Getty Ave, Paterson 3, N. J.

ARCHES, FURNACE, AIR-COOLED

American Arch Co, Inc, 60 E 42nd St, New York 17, N. Y.
Bernitz Furnace Appliance Co, 89 Broad St, Boston 10, Mass.
Bigelow Liptak Corp, 2842 W Grand Blvd, Detroit 2, Mich.
Carborundum Co, Perth Amboy, N. J.
Chicago Fire Brick Co, 1467 Elston Ave, Chicago 22, Ill.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Detrick, M H Co, 111 W Washington St, Chicago 2, Ill.
Harbison-Walker Refractories Co, Farmers Bank Bldg, Pittsburgh
Laclede Christy Co, Ambassador Bldg, St Louis 1, Mo.
McClave, R B Engrg Co, 149 Broad St Station Bldg, Phila, 3, Pa.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo.
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Quigley Co, Inc, 527 Fifth Ave, New York 17, N. Y.
Ramtite Co, 2549 W 18th St, Chicago 8, Ill.
Reintjes, Geo P, Co, 2517 Jefferson St, Kansas City, Mo.
Rust Engrg Co, Rust Bldg, Pittsburgh 19, Pa.
Wickes Boiler Co, 512 N Water St, Saginaw, Mich.

ARCHES, FURNACE, WATER-COOLED

Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Bernitz Furnace Appliance Co, 89 Broad St, Boston 10, Mass.
Bigelow Liptak Corp, 2842 W Grand Blvd, Detroit 2, Mich.
Chicago Fire Brick Co, 1467 Elston Ave, Chicago 22, Ill.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Detrick M H, Co, 111 W Washington St, Chicago 2, Ill.
McClave, R B Engrg Co, 149 Broad St Station Bldg, Phila, 3, Pa.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo.
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Detrick M H, Co, 111 W Washington St, Chicago 2, Ill.
McClave, R B Engrg Co, 149 Broad St Station Bldg, Phila, 3, Pa.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo.
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Power Piping Div, Blaw-Knox Co, 1525 Pennsylvania Ave, Pittsburgh 12, Pa.
Quigley Co Inc, 527 Fifth Ave, New York 17, N. Y.
Ramtite Co, 2549 W 18th St, Chicago 8, Ill.
Reintjes, Geo P, Co, 2517 Jefferson St, Kansas City, Mo.
Rust Engrg Co, Rust Bldg, Pittsburgh 19, Pa.
Springfield Boiler Co, 1901 E Capitol Ave, Springfield, Ill.
Wickes Boiler Co, 512 N Water St, Saginaw, Mich.

ARCHES, REFRACTORY

Armstrong Cork Co, Liberty St, Lancaster, Pa.
Bernitz Furnace Appliance Co, 89 Broad St, Boston 10, Mass.
Bigelow Liptak Corp, 2842 W Grand Blvd, Detroit 2, Mich
Carborundum Co, Perth Amboy, N. J.
Carolina Refractories Co, Hartsville, S. C.
Chicago Fire Brick Co, 1467 Elston Ave, Chicago 22, Ill.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Denver Fire Clay Co, P O Box 5510, Denver 17, Colo.
Detrick M H Co, 111 W Washington St, Chicago 2, Ill.
Green, A P, Fire Brick Co, Mexico, Mo.
Harbison-Walker Refractories Co, Farmers Bank Bldg, Pittsburgh
Laclede Christy Co, Ambassador Bldg, St Louis 1, Mo.
McClave, R B Engrg Co, 149 Broad St Station Bldg, Phila, 3, Pa.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo
Norton Co, 1 New Bond St, Worcester 6, Mass.
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Quigley Co Inc, 527 Fifth Ave, New York 17, N. Y.
Ramtite Co, 2549 W 18th St, Chicago 8, Ill.
Reintjes, Geo P, Co, 2517 Jefferson St, Kansas City, Mo.
Rust Engrg Co, Rust Bldg, Pittsburgh 19, Pa.
Walte Construction Co, 111 Westminster St, Providence 3, R. I.
Wickes Boiler Co, 512 N Water St, Saginaw, Mich.

ASBESTOS PRODUCTS

Alsop Engrg Corp, Milldale, Conn.
Baldwin-Hill Co, 500 Breunig Ave, Trenton 2, N. J.
Belmont Packing & Rubber Co, Butter & Sepviva Sts, Phila 37.
Carey, Philip Mfg Co, Lockland, Cincinnati 15, Ohio
Collins Packing Co Inc, 401 N Broad St, Phila 8, Pa.
Darcold Co, Inc, 145 Sixth Ave, New York 13, N. Y.
Ehret Magnesia Mfg Co, Valley Forge, Pa.
Eureka Packing Co, 294-296 46th St, Bklyn 20, N. Y.
Felt Products Mfg Co, 1511 Carroll Ave, Chicago 7, Ill.
Flintkote Co, 30 Rockefeller Plaza, New York 20, N. Y.
Greene, Tweed & Co, 322 Elm Ave, North Wales, Pa.
Industrial Products Co, 2923 N Fourth St, Philadelphia 33, Pa.
Johns-Manville, 22 East 40th St, New York 16, N. Y.
Keasbey & Mattison Co, Butler Ave, Ambler, Pa.
Linear Inc, State Rd & Levick St, Tacony, Phila 35, Pa.
Marlo Co, Inc, 434 Broadway, New York 13, N. Y.
Paraffine Companies Inc, 475 Brannan St, San Francisco 19, Calif.
Porter, H W & Co, Inc, 825 Frelinghuysen Ave, Newark 5, N. J.
Raybestos-Manhattan Inc, Packing Div, Manheim, Pa.
Ruberoid Co, 500 Fifth Ave, New York 18, N. Y.
Standard Asbestos Mfg Co, 860 W Evergreen Ave, Chicago 22, Ill.
Union Asbestos & Rubber Co, 1819 S 54th Ave, Cicero 50, Ill.

BAFFLES, BOILER

Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Bernitz Furnace Appliance Co, 89 Broad St, Boston 10, Mass.
Carborundum Co, Perth Amboy, N. J.
Carolina Refractories Co, Hartsville, S. C.
Chicago Fire Brick Co, 1467 Elston Ave, Chicago 22, Ill.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Denver Fire Clay Co, P O Box 5510, Denver 17, Colo.
Engineer Co, 75 West St, New York 6, N. Y.
Green, A P, Fire Brick Co, Mexico, Mo.
Harbison-Walker Refractories Co, Farmers Bank Bldg, Pittsburgh
Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Laclede Christy Co, Ambassador Bldg, St Louis 1, Mo.
Mexico Refractories Co, Better Refractories Bldg, Mexico, Mo.
Murray Iron Wks Co, 1106 Washington St, Burlington, Iowa
Plibrico Jointless Firebrick Co, 1800 Kingsbury St, Chicago 14, Ill.
Power Plant Efficiency Co, P O Box 592, Indianapolis 4, Ind.
Quigley Co, Inc, 527 Fifth Ave, New York, N. Y.
Ramtite Co, 2549 W 18th St, Chicago 8, Ill.
Refractory & Insulation Corp, 120 Wall St, New York 5, N. Y.
Reintjes, Geo P, Co, 2517 Jefferson St, Kansas City, Mo.
Rust Engrg Co, Rust Bldg, Pittsburgh 19, Pa.
Springfield Boiler Co, 1901 E Capitol Ave, Springfield, Ill.
Walte Construction Co, 111 Westminster St, Providence 3, R. I.
Wickes Boiler Co, 515 N Washington Ave, Saginaw, Mich.

BAROMETERS

Bristol Co, Waterbury 91, Conn.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Manning, Maxwell & Moore Inc, 11 Ellas St, Bridgeport 2, Conn.
Precision Thermometer & Instr Co, 1401 Brandywine St, Phila 30, Pa.
Taglabue, C J Mfg Co, 614 Frelinghuysen Ave, Newark 5, N. J.
Taylor Instrument Cos, 95 Ames St, Rochester 1, N. Y.
Uehling Instrument Co, 473 Getty Ave, Paterson 3, N. J.
Wallace & Tiernan, 1 Main St, Belleville 9, N. J.

BASES, MOTOR

Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
American Pulley Co, 4200 Wissahickon Ave, Phila 29, Pa.
Automatic Motor Base Co, P O Box 2186, Paterson, N. J.
Bond, Charles, Co, 617-623 Arch St, Phila 6, Pa.
Campbell Heating, E K Co, 1809 Manchester Ave, Kansas City, Mo.
Chicago Belting Co, 125 N Green St, Chicago 7, Ill.
Cork Import Co, 39 Park Place, Englewood, N. J.
Electric Machy Mfg Co, 1331 NE Tyler St, Minneapolis 13, Minn.
Elliott Co, Jeannette, Pa.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Link-Belt Co, 2045 W Hunting Park Ave, Phila 40, Pa.
Lukens Steel Co, Coatsville, Pa.
Nazareth Steel Fabricators Inc, Nazareth, Pa.
Rockwood Mfg Co, Inc, 1801 English Ave, Indianapolis 6, Ind.
Stover Steel Tank & Mfg Co, 100 S Hancock St, Freeport, Ill.
Warren Brothers Roads Co, 38 Memorial Dr, Cambridge 42, Mass.

BATTERIES, STORAGE

Edison, Thomas A, Inc, Instrument Div, West Orange 3, N. J.
Electric Storage Battery Co, 19th St & Allegheny Ave, Phila 32, Pa.
Esso Standard Oil Co, 15 W 51st St, New York 19, N. Y.
Goodrich, B F Co, Akron, Ohio
Gould Storage Battery Corp, Trenton 7, N. J.
Graybar Electric Co Inc, 420 Lexington Ave, NYC 17, N. Y.
Nickel Cadmium Battery Corp, Pleasant St, Easthampton, Mass.

BEARINGS, ANTI-FRICTION

Ahlberg Bearing Co, 3025 W 47th St, Chicago 32, Ill.
American Pulley Co, 4200 Wissahickon Ave, Phila 29, Pa.
Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Division Lead Co, 836 W Kinzie St, Chicago 22, Ill.
Bond, Charles, Co, 617-623 Arch St, Phila 6, Pa.
Boston Gear Wks, 14 Hayward St, Quincy 71, Mass.
Chain Belt Co, 1674 W Bruce St, Milwaukee 4, Wis.
Continental Gin Co, 4500 S 5th Ave, Birmingham 2, Ala.
Dodge Mfg Corp, Mishawaka, Ind.
Fafnir Bearing Co, Booth St, New Britain, Conn.
Federal Bearing Co, Fairview Ave, Poughkeepsie, N. Y.
Gwilliam Co, 360 Furman St, Brooklyn 2, N. Y.
Heacon, Inc, 1003 Broad Street Station Bldg, Phila 3, Pa.
Hill Pump Valve Co, 2728 Elston Ave, Chicago 47, Ill.
Hyatt Bearings Div, General Motors Corp, Harrison, N. J.
Jeffrey Mfg Co, 932-99 N Fourth St, Columbus 16, Ohio
Link-Belt Co, Bearing Div, 519 N Holmes Ave, Indianapolis 6, Ind.
Marlin-Rockwell Corp, 402 Chandler St, Jamestown, N. Y.
Medart Co, 100 Potomac St, St Louis 18, Mo.
New Departure Div, General Motors Corp, Bristol, Conn.
Norma - Hoffmann Bearings Corp, Stamford, Conn.
Orange Roller Bearing Co, 557 Main St, Orange, N. J.
Pure Carbon Co, 441 Hall Ave, St Mary's, Pa.
Rollway Bearing Co Inc, 541 Seymour St, Syracuse 4, N. Y.
S K F Industries, Inc, Front St & Erie Ave, Phila 32, Pa.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.
Timken Roller Bearing Co, 1835 Deuber Ave, SW, Canton 6, Ohio
Torrington Co, Torrington, Conn.
Voss Machine Wks, 242 E 122nd St, New York, N. Y.
Wood's T B Sons Co, Fifth Ave, Chambersburg, Pa.

BEARINGS, OILLESS

American Pulley Co, 4200 Wissahickon Ave, Phila 29, Pa.
Bearium Metals Corp, 268 State St, Rochester 4, N. Y.

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Bond, Charles, Co. 617-623 Arch St. Phila 6, Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71, Mass.
Bunting Brass & Bronze Co. 715 Spencer St. Toledo 9, Ohio
Goodyer Industries, 224 S Michigan Ave. Chicago 4, Ill.
Pure Carbon Co. 441 Hall Ave. St. Mary's, Pa.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.

BEARINGS, SLEEVE

Ampco Metals Inc. 1745 S 38th St. Milwaukee 4, Wis.
Bearium Metals Corp. 268 State St. Rochester 4, N. Y.
Bond, Charles, Co. 617-623 Arch St. Phila 6, Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71, Mass.
Bunting Brass & Bronze Co. 715 Spencer St. Toledo 9, Ohio
Continental Gin Co. 4500 S 5th Ave. Birmingham 2, Ala.
Dodge Mfg Corp. Mishawaka, Ind.
Goodyer Industries, 224 S Michigan Ave. Chicago 4, Ill.
Green Fuel Economizer Co Inc. 627 Main St. Beacon, N. Y.
Haynes Stellite Co. 725 S Lindsay St. Kokomo, Ind.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. New York 16, N. Y.
Magnolia Metal Co. 18 W Jersey St. Elizabeth 4, N. J.
Sprout, Waldron & Co. Muncy, Pa.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.

BEARINGS, THRUST

Ahlberg Bearing Co. 3025 W 47 St. Chicago 32, Ill.
Ampco Metals Inc. 1745 S 38th St. Milwaukee 4, Wis.
Atlantic Gear Wks. 200 Lafayette St. New York 12, N. Y.
Bond, Charles, Co. 617-623 Arch St. Philadelphia 6, Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71, Mass.
Bunting Brass & Bronze Co. 715 Spencer St. Toledo 9, Ohio
Continental Gin Co. 4500 5th Ave S. Birmingham 2, Ala.
Fafnir Bearing Co. Booth St. New Britain, Conn.
Federal Bearing Co. Fairview Ave. Poughkeepsie, N. Y.
Gwilliam Co. 360 Furman St. Brooklyn 2, N. Y.
Jeffrey Mfg Co. 932-99 N Fourth St. Columbus 16, Ohio
Link-Belt Co Bearing Div, 519 N Holmes Ave. Indianapolis 6, Ind.
McQuay-Norris Mfg Co. 2320 Marconi St. St Louis 10, Mo.
Marlin-Rockwell Corp. 402 Chandler St. Jamestown, N. Y.
Orange Roller Bearing Co. 557 Main St. Orange, N. J.
Pure Carbon Co. 441 Hall Ave. St. Mary's, Pa.
Rollway Bearing Co. Inc. 541 Seymour St. Syracuse 4, N. Y.
S K F Industries, Inc. Front St & Erie Ave. Philadelphia 32, Pa.
Smith, S Morgan, Co. 500 Lincoln St. York, Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway, Aurora, Ill.
Timken Roller Bearing Co. 1835 Deuber Ave. SW, Canton 6, Ohio
Torrington Co. Torrington, Conn.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.

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Bridgeport Thermostat Div Robertshaw-Fulton Controls Co. 1225 Connecticut Ave. Bridgeport 1, Conn.
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Clifford Mfg Co. 152 Grove St. Waltham 54, Mass.
Cook Electric Co. 2700 Southport Ave. Chicago 1, Ill.
Fulton Sylphon Co. Knoxville 15, Tenn.
Kopperman, Joseph & Sons, 310-16 New St. Phila 6, Pa.
Zallea Bros. 801 Locust St. Wilmington 99, Del.

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Dick, R & J Co. Inc. 28 Sade St. Passaic, N. J.
General Conveyor Co. 38 22nd St. Long Island City 1, N. Y.
Jeffrey Mfg Co. 932-99 N Fourth St. Columbus 16, Ohio
Manheim Mfg & Belting Co. Manheim, Pa.

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Anchor Packing Co. 401 N Broad St. Phila 8, Pa.
Darcoid Co Inc. 145 Sixth Ave. New York 13, N. Y.
General Conveyor Co. 38 22nd St. Long Island City 1, N. Y.
Goodall Rubber Co., Whitehead Rd. Trenton 4, N. J.
Raniville, F Co. 241-251 Pearl St. N W, Grand Rapids 2, Mich.
Russell Mfg Co. Middletown, Conn.

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Anchor Packing Co. 401 N Broad St. Phila 8, Pa.
Bartlett, C O & Snow Co. 6200 Harvard Ave. Cleveland 5, Ohio
Boston Woven Hose & Rubber Co. P O Box 1071, Cambridge, Mass.
Cincinnati Rubber Mfg Co. Franklin Ave. Cincinnati 12, Ohio
Colorado Fuel & Iron Corp. Continental Oil Bldg. Denver 1, Colo.
Continental Gin Co. 4500 S Fifth Ave. Birmingham 2, Ala.
Darcoid Co Inc. 145 Sixth Ave. New York 13, N. Y.
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General Conveyor Co. 38 22nd St. Long Island City 1, N. Y.
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Hewitt-Robins Inc. 370 Lexington Ave. New York 17, N. Y.
Link-Belt Co. 300 W Pershing Rd. Chicago 9, Ill.
New York Belting & Packing Co. 1 Market St. Passaic, N. J.
Quaker Rubber Corp. Comly St & State Rd. Phila 24, Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic, N. J.
Republic Rubber Div. Albert St. Youngstown 1, Ohio
Thermoid Co., Trenton, N. J.
United States Rubber Co. 1230 6th Ave. New York 20, N. Y.

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Raybestos-Manhattan Inc. 61 Willett St. Passaic, N. J.
Republic Rubber Div. Albert St. Youngstown 1, Ohio
Rockwood Mfg Co Inc. 1801 English Ave. Indianapolis 6, Ind.
Russell Mfg Co. Middletown, Conn.
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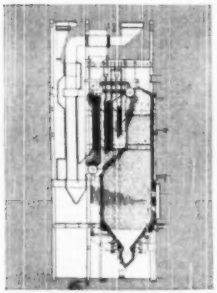
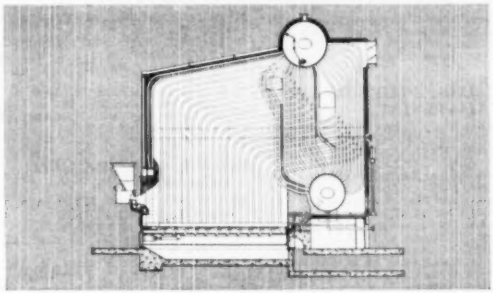
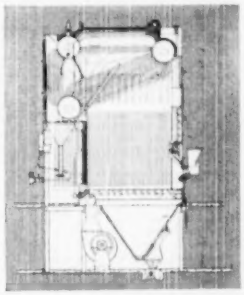


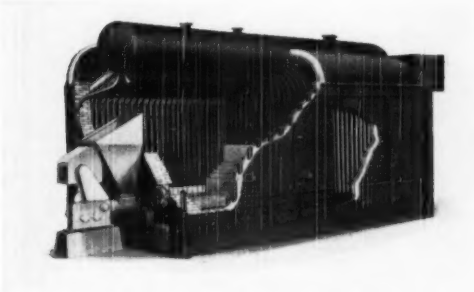
Erie City 3-drum type Steam Generators incorporating auxiliary equipment built to any commercial size and pressure. A 40 page catalog SB-30 describes these complete steam generators.



Erie City V-C 2-drum Steam Generators feature integral top, sides and front wall water cooling in a self contained steel cased unit. V-C's are available in several standardized furnace widths to meet restricted space conditions. The V-C 2-drum is a high capacity, exceptionally dry steamer. Write for Bulletin SB-37.

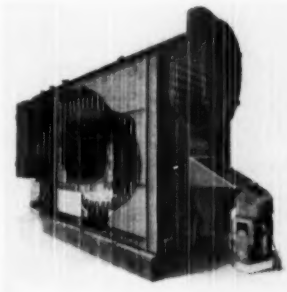


Erie City Type 3-drum boilers feature 2 1/2" tubes for more tube area per foot of furnace width. These are fast steamers with exceptionally dry steam output. Write for Bulletin SB-22A.

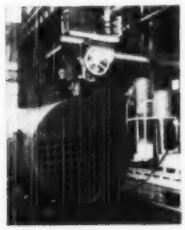


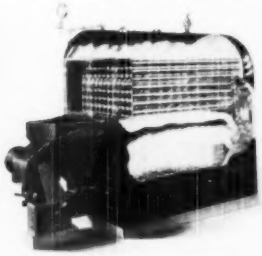
Erie City V-L Boilers in sizes to 300 h.p. are available as built-up boiler-furnace-refractory units—larger sizes for field erection. The radiant or riser tubes in the water walls are backed by tile insulation to assure lower temperatures in the outside or downcomer tubes providing definite ring flow circulation in each water wall element. For complete data write for Bulletin SB-24B.

Erie City Economics are available with integral water wall cooling of side wall refractories which permits the most efficient use of modern mechanical firing methods. This cooling method greatly extends the refractory life and permits high capacity operation. Write for Bulletin SB-21.



Erie City Firing Methods include full range of sizes of Unitype Pulverizers, Underfeed and Spreader Stokers. Booklets available on each method.

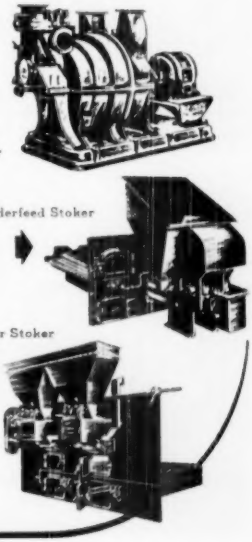




H.R.T. Boilers in automatic fusion welded construction carried in stock in sizes to 300 h.p. and in pressures of 100 to 150 W.S.P. Write for Bulletin SB-32.

Erie City Welded Steel Heating Boilers carried in stock in popular sizes for all firing methods. They are designed for 15 pounds steam or 30 pounds water pressure. Write for Bulletin SB-29.

Erie City Vertical Fire Tube Boilers in riveted or Class I fusion welded types available in full range of sizes.



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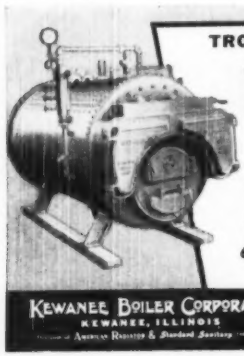
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Maxim Silencer Co. 85 Homestead Ave. Hartford 1. Conn.
Murray Iron Wks Co. 1106 Washington St. Burlington. Iowa
Page Boiler Co. 815 Webster Ave. Chicago 14. Ill.
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Tilco-Pin Div. David E Kennedy Inc. 58 Second Ave. Brooklyn 15. N. Y.
Titusville Iron Works Co. Div Titusville. Pa.
Vogt. Henry Machine Co. 1000 W Ormsby St. Louisville. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, WATER-TUBE, 30,000 LB AND UNDER

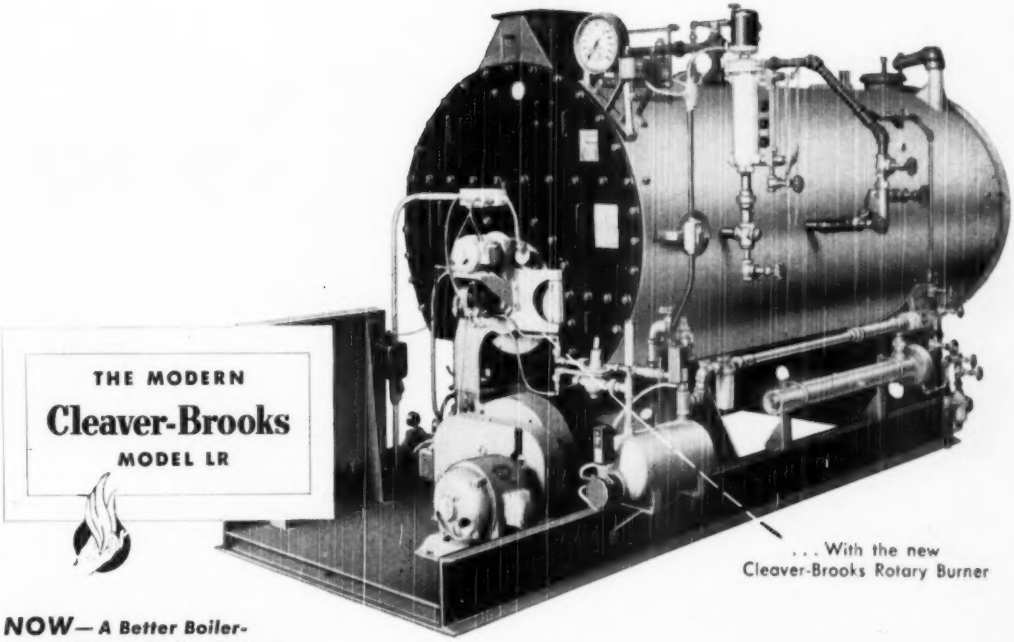
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Badenhausen. John Phillips. South Ave & Reading RR. Wyncote. Pa.
Besler Corp. 4053 Harlan St. Emeryville 8. Calif.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Bros. Wm. & Mfg Co. 1057 10th Ave. S E Minneapolis 14. Minn.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 6. N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Crotty Mfg Corp. 133-15 35th Ave. Flushing. N. Y.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
E Keeler Co. 238 West St. Williamsport 3. Pa.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
International Boiler Wks Co. 1 Birch St. East Stroudsburg. Pa.
Koven. L O & Brother. Inc. 154 Ogden Ave. Jersey City 7. N. J.
McClave. R B. Engrg Co. 149 Broad St Station Bldg. Phila 3. Pa.
Mund Brothers Inc. 1600 N Indiana St. Los Angeles 33. Calif.
Murray Iron Wks Co. 1106 Washington St. Burlington. Iowa
Page Boiler Co. 815 Webster Ave. Chicago 14. Ill.
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Steamaster Automatic Boiler Co. 5819 South Compton Ave. Los Angeles 11. Calif.
Struthers Wells Corp. Warren. Pa.
Titusville Iron Works Co. Div. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, WATER-TUBE, 30,000-100,000 LB

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Badenhausen. John Phillips. South Ave & Reading RR. Wyncote. Pa.
Bigelow Co. Lloyd & River Sts. New Haven 13. Conn.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave S E. Minneapolis 14.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 6. N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware

Design

FOR PRODUCING STEAM



NOW—A Better Boiler-Burner Unit to Utilize Today's Low-Cost Fuels—Heavy Oil and Gas

The Cleaver-Brooks Model LR is a "trail-blazer" in modern self-contained boiler design and construction. It makes more effective use of today's low-cost fuels, (heavy oils and gas), and you are assured of better boiler performance.

A Brief List of Notable Features:

— the new Cleaver-Brooks rotary burner — simple — compact — precision machined — perfect mechanical balance — fully automatic — provides unprecedented flexibility in burning heavy fuel oils or industrial gases.

— single low-speed, low-power consumption blower furnishes both primary and secondary air for combustion—less weight and space requirements — reduction in sound levels.

— totally enclosed, drip and dust-proof panel for all major electrical controls.

— electronic combustion safety devices, dual low water cutoffs — are standard equipment.

— simplified design of combination gas-oil burner permits change-over from oil to gas or vice versa in less than a minute.

— improved design of boiler furnace and liberal heating surfaces provide greatest economy with all fuels.

— boilers of all-welded construction — meet standards of A.S.M.E. boiler code and leading underwriters — burner approved by recognized national agencies.

The Cleaver-Brooks Model LR self-contained boilers are of a highly developed four-pass fire tube design — tested and proved by factory and field experience on several thousand boilers of this type.

Write for complete specifications, dimension data, firing rates.

CLEAVER-BROOKS COMPANY
332 EAST KEEFE AVENUE
MILWAUKEE 12, WISCONSIN

Now Ready: Bulletin SG-142 contains detailed data and description of the MODEL LR. Send for your copy today!

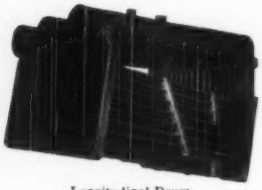
advertised in this issue, see advertisers' index, pages 222-223

MURRAY IRON WORKS COMPANY

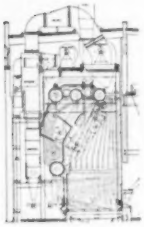
Burlington, Iowa, U. S. A.

Steam Turbines, Boilers, Iron Castings

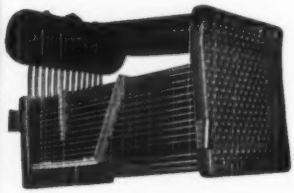
BOILERS



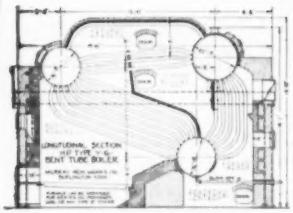
Longitudinal Drum Type "A" Boiler



4-Drum Bent Tube Steam Generator



Cross Drum Box Header



3-Drum Lowhead

Horizontal Return Tubular Boiler

For power and heating plants, Murray offers a wide selection of boilers. Water tube boilers are built in both straight and bent tube types. In the straight tube type, the Murray Type "A" longitudinal drum boiler has been eminently successful. Also available is the cross drum straight tube type.

Bent tube boilers are built with two, three or four drums. The four-drum bent tube type is designed primarily for the larger power installations, and may be furnished with double flow circulation. The three-drum bent tube is most commonly used in the low head construction, but also is designed for high setting. The two-drum bent tube type is used primarily as a heating boiler.

Water walls may be provided with either the straight tube or bent tube types.

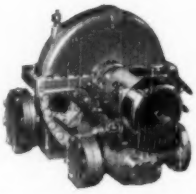
In fire tube boilers, Murray offers horizontal return tubulars, Scotch Marine, vertical, as well as an integral type of steel encased horizontal return tubular.

Murray steam turbines are quality prime movers for mechanical and electrical machinery. Type "R," "S," and "U," single pressure stage velocity compounded, are furnished for direct drive or through Murray high-speed reduction gears for requirements from 10 to 2000 H.P., as well as for electric generators up to 200 K.W. Multi-stage impulse turbines "UV," "RM," and "D," direct drive or geared, are furnished for mechanical applications up to 4000 H.P. and in turbo-generators up to 3000 K.W. A wide range of accessories is available for special requirements.

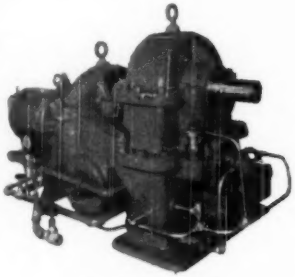
Turbo-generators of the most modern construction are available in geared combinations up to and including 1500 K.W. and in direct connected units from 500 to 3000 K.W. Rating.

Type "UV" turbines and turbo-generators may be furnished for operation on low pressure steam or as extraction, mixed pressure or extraction mixed pressure units.

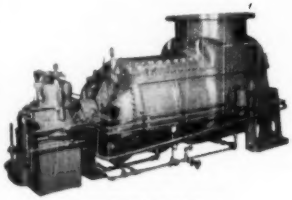
TURBINES



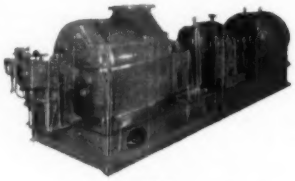
Type "S" Single Stage Turbine for Mechanical Drive



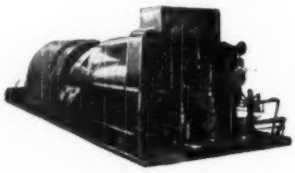
Type "UG" Integral Geared Turbine



Type "UV" Multi-Stage Turbine



500 K.W. Package Type Turbine Generator Set



2500 K.W. Turbo-Generator

E Keeler Co. 238 West St. Williamsport 3. Pa.
Erie City Iron Wks 1422 East Ave. Erie. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Heilman Boiler Wks. 132 Linden St. Allentown. Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
McClave. R B. Engrg Co. 149 Broad St Station Bldg. Phila 3. Pa.
Murray Iron Wks Co. 1106 Washington St. Burlington. Iowa
Petro-Chem Development Co. 120 E 41st St. New York 17. N. Y.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Titusville Iron Wks Co. Div. Titusville. Pa.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOILERS, WATER-TUBE, OVER 100,000 LB

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave S E. Minneapolis 14.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 6. N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor. Delaware
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
E Keeler Co. 238 West St. Williamsport 3. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
McClave. R B. Engrg Co. 149 Broad St Station Bldg. Phila 3. Pa.
Murray Iron Wks Co. 1106 Washington St. Burlington. Iowa
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Union Iron Works. 1420 Cascade St. Erie. Pa.
Vogt. Henry Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BOXES, JUNCTION

Adam. Frank Electric Co. P O Box 357. St Louis 3. Mo.
Appleton Electric Co. 1701-41 Wellington Ave. Chicago 13. Ill.
Crouse Hinds Co. Wolf & Seventh N Syracuse 1. N. Y.
Falstrom Co. 22 Falstrom Court. Passaic. N. J.
General Electric Co. Construction Materials Dept. 1285 Boston Ave. Bridgeport 2. Conn.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
National Electric Products Corp. Chamber of Commerce Bldg. Pittsburgh 19. Pa.
O Z Electrical Mfg Co Inc. 262 Bond St. Brooklyn 2. N. Y.
Pyle-National Co. 1334 N Kostner Ave. Chicago 51. Ill.
Ripley Co. Factory St. Middletown. Conn.

BREAKERS, CIRCUIT, AIR

Allis-Chalmers Mfg. Co. 952 S 70th St. Milwaukee 1. Wis.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1. N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Federal Electric Products Co. Inc. 50 Paris St. Newark 5. N. J.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17. N. Y.
I-T-E Circuit Breaker Co. 19th & Hamilton Sts. Phila 30. Pa.
Roller-Smith 1756 W Market St. Bethlehem. Pa.
Square D Co. 4041 N Richards St. Milwaukee 12. Wis.
Trumbull Electric Mfg Co. 39 Woodford Ave. Plainville. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

BREAKERS, CIRCUIT, OIL

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17. N. Y.
Pacific Electric Mfg Co. 5615 Third St. San Francisco 24. Calif.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

BREECHINGS

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Badenhausen. John Phillips. South Ave & Reading RR. Wyncote. Pa.
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Bethlehem Steel Co. Bethlehem. Pa.
Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6. Mo.
Brownell Co. 306 N Findlay St. Dayton 1. Ohio
Chicago Bridge & Iron Co. 2454 McCormick Bldg. Chicago 4. Ill.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Connery Construction Co. 2nd & Luzerne Sts. Phila 40. Pa.
Falstrom Co. 22 Falstrom Court. Passaic. N. J.
Farrar & Trefts Inc. 20 Milburn St. Buffalo 12. N. Y.
General American Transportation Corp. Sharon. Pa.
Graver Tank & Mfg Co Inc. 4809 Tod Ave. East Chicago. Ind.
Green Fuel Economizer Co Inc. 627 Main St. Beacon. N. Y.
Hicks. S D & Son Co. 1671 Hyde Park Ave. Boston 36. Mass.
Keeler. E Co. 238 West St. Williamsport. Pa.
Kirk & Blum Mfg Co. 2874 Spring Grove Ave. Cincinnati 25. Ohio
Koven. L O & Brother Inc. 154 Ogden Ave. Jersey City 7. N. J.
Littleford Bros Inc. 453 E Pearl St. Cincinnati. Ohio
Nazareth Steel Fabricators Inc. Nazareth. Pa.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
Petroleum Iron Wks Div. P O Box 3031. Beaumont. Texas
Quaker City Iron Wks. Aramingo Ave & Ontario St. Phila 34. Pa.
Steel Products Corp. 52 Vanderbilt Ave. New York 17. N. Y.
Stover Steel Tank & Mfg Co. 100 S Hancock St. Freeport. Ill.
Wickes Boiler Co. 515 N Washington Ave. Saginaw. Mich.

BRICK, FIRE, HIGH TEMPERATURE REFRACTORY

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10. Mass.
Botfield Refractories Co. 784 S Swanson St. Phila 47. Pa.
Carborundum Co. Perth Amboy. N. J.
Carolina Refractories Co. Hartsville. S. C.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Condenser Service & Engrg Co. 95 River St. Hoboken. N. J.
Denver Fire Clay. P O Box 5510. Denver 17. Colo.
Green. A P. Fire Brick Co. Mexico. Mo.
Harbison-Walker Refractories Co. Farmers Bank Bldg. Pittsburgh 22. Pa.
Johns-Manville. 22 E 40th St. New York 16. N. Y.
Kellogg. M W Co. 225 Broadway. New York 7. N. Y.
Laclede Christy Co. Ambassador Bldg. St. Louis 1. Mo.
Mexico Refractories Co. Better Refractories Bldg. Mexico. Mo.
Mullite Refractories Co. Shelton. Conn.
Norton Co. 1 New Bond St. Worcester 6. Mass.
Pilbrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14. Ill.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Reintjes. Geo P. Co. 2517 Jefferson St. Kansas City. Mo.

BRUSHES, MOTOR, GENERATOR

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Bogue Electric Co. 52 Iowa Ave. Paterson 3. N. J.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
National Carbon Co. Inc. 80 E 42nd St. New York 17. N. Y.
Ohio Carbon Co. Inc. 12508 Berea Road. Cleveland 11. Ohio
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

BUCKETS, HOIST

Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.

BRICK, INSULATING

Armstrong Cork Co. Liberty St. Lancaster. Pa.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Carborundum Co. Perth Amboy. N. J.
Chicago Fire Brick Co. 146 Elston Ave. Chicago 22. Ill.
Denver Fire Clay Co. P O Box 5510. Denver 17. Colo.
Green. A P. Fire Brick Co. Mexico. Mo.
Harbison-Walker Refractories Co. Farmers Bank Bldg. Pittsburgh 22. Pa.
Johns-Manville. 22 E 40th St. New York 16. N. Y.
Kellogg. M W Co. 225 Broadway. New York 7. N. Y.
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National Carbon Co. Inc. 80 E 42nd St. New York 17. N. Y.
Ohio Carbon Co. Inc. 12508 Berea Road. Cleveland 11. Ohio
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

BUCKETS, HOIST

Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
Industrial Products Co. 2923 N Fourth St. Philadelphia 33. Pa.
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12. Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.

BUNKERS, COAL AND ASH

Allen-Sherman-Hoff Co. 227 S 15th St. Phila 2. Pa.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Beaumont Birch Co. 1505 Race St. Phila 3. Pa.
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Bethlehem Steel Co. Bethlehem. Pa.
Brady Conveyors Corp. 20 W Jackson Blvd. Chicago 4. Ill.
Connery Construction Co. 2nd & Luzerne Sts. Phila 40. Pa.
Corrigan Co Inc. 41-47 Norwood St. Boston 22. Mass.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Fairfield Engrg Co. 320 Chicago Ave. Marion. Ohio
Ginord-Wood Co. Hudson. N. Y.
Hahn-Pitz Corp. 286 Scholes St. Bklyn 6. N. Y.
Hydro-Ash Corp. 1408 W Harrison St. Chicago 7. Ill.
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
McNally Pittsburg Mfg Corp. Pittsburg. Kans.
National Conveyors Co Inc. 50 Church St. New York 7. N. Y.
Nazareth Steel Fabricators. Inc. Nazareth. Pa.
Steel Products Corp. 52 Vanderbilt Ave. New York 17. N. Y.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.

BURNERS, GAS

American Flexible Coupling Co. 1801 Pittsburgh Ave. Erie. Pa.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.

BROWN BOVERI
LOAD DISCONNECT

TYPE RB

For 7.5 and 15 kv service. Will safely interrupt full rated current 500 TIMES without overhaul.

BROWN BOVERI

Also:
Full line of
indoor and outdoor
AIR BLAST BREAKERS
for all voltages, currents and interrupting ratings normally required.

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BROWN BOVERI CORP., 19 RECTOR ST., NEW YORK 6, N. Y.
Progressive Engineers — Skilled Craftsmen — Est. Over 50 Years

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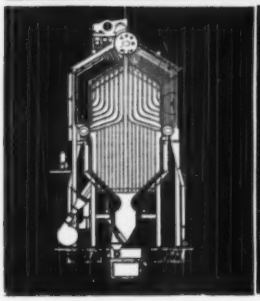
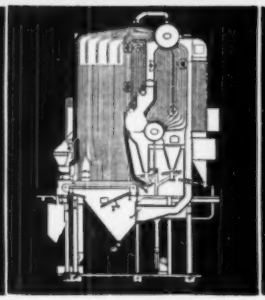
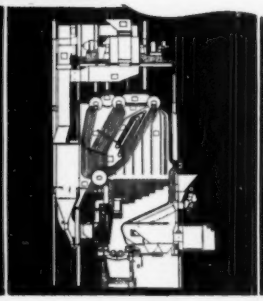


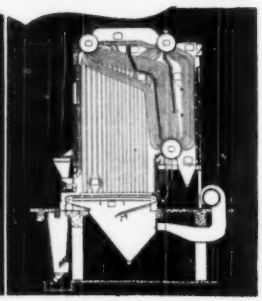
H-TYPE, a self-contained steel cased generator unit for any fuel or firing method, for any desired capacity or pressure.



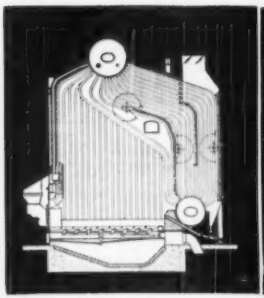
O-TYPE, 2-drum steam generator with fully water cooled furnace for high capacity output. Adaptable to tile, insulation and casing type setting.



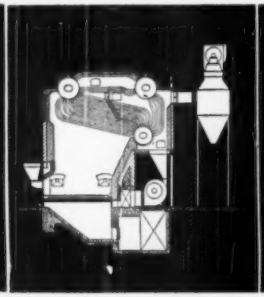
B-TYPE, 4-drum design. Gas, Oil or low fusion Western coal can be readily burned in this furnace which is water cooled and provided with cast iron armor protection.



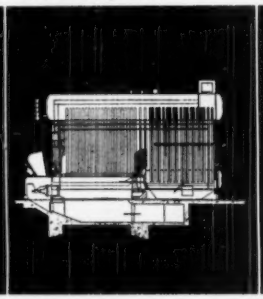
A-TYPE, 3-drum design with special front bank tube curvatures to increase the radiant surface, accelerating speed of circulating and rate of steaming.



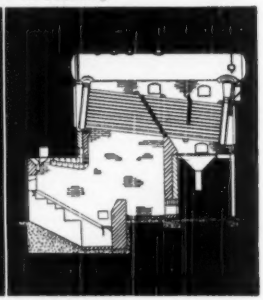
O-TYPE, fully water cooled furnace with all water wall supply tubes inside the setting, which is tile, insulation and casing type.



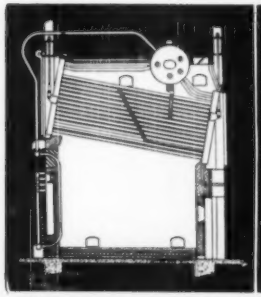
L-TYPE, for low headroom conditions, two top drums at the same level providing maximum steam disengaging surface. Many sizes can be shipped shop assembled.



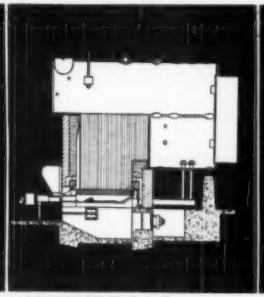
S-TYPE, provides water walled furnace that does not require circulator connections, the setting except for front and bridge walls is constructed of refractory tile water cooled, insulated steel panel cased.



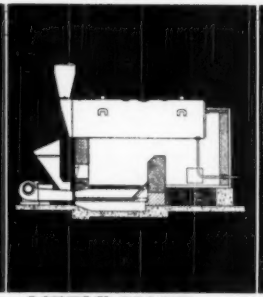
LD-TYPE, long drum with box header construction with either single or double horizontal drums. A thoroughly standardized unit built in units as large as 7,000 square ft. of heating surface.



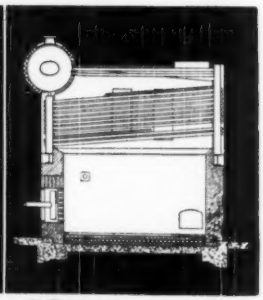
XD-TYPE, cross drum box header type, with steep inclination to the main tube bank to promote rapid circulation — Smaller sizes can be shipped fully assembled or tube bank assembled and drum detached.



UNIVERSAL, fire tube boilers sizes to 3000 H.P. (1) for brick setting — (2) steel cased refractory lined in self-contained units — (3) either of these styles with water cooled furnaces.



LITTLE GIANT, a shop assembled unit combining pressure element and steel refractory lined furnace — one piece boiler shell — 9 sizes 10 to 75 H.P. for 100 or 150 lb. W.S.P.



KD-TYPE, a knocked-down cross drum type boiler adapted from the Union Cross Drum Power Boiler design. No field welding required. 14 sizes from 2996 thru 34, 119 sq. ft. E.D.R. S.H.B.I. steam rating.

Best, W N Combustion Equip Co, Route 17, Carlstadt, N. J.
Chiksan Co, 330 N Pomona Ave, Brea, Calif.
Coen Co, 40 Boardman Pl, San Francisco 3, Calif.
Combustion Equip Co, 1820 Cherry St, Kansas City 8, Mo.
Coppus Engrg Corp, 344 Park Ave, Worcester 2, Mass.
Denver Fire Clay Co, P O Box 5510, Denver 17, Colo.
Dutton, C H Co, Portage & Gibson Sts, Kalamazoo, Mich.
Eclipse Fuel Eng Co, 711 S Main St, Rockford, Ill.
Engineer Co, 75 West St, New York 6, N. Y.
Enterprise Engine & Foundry Co, 18th & Florida Sts, San Francisco 10, Calif.
Faber Engrg Co, Amber & Westmoreland Sts, Phila 34, Pa.
Forney Engrg Co, 2705 Hawes St, Dallas, Texas
General Electric Co, Air Conditioning Dept, 5 Lawrence St., Bloomfield, N. J.
Hauck Mfg Co, 136 10th St, Brooklyn 15, N. Y.
Inferno Co, 115 Ricou St, Shreveport, La.
International Combustion Corp, 436 Pearl St, New York, N. Y.
Lientz, B P Mfg Co, 210 W 8th St, Kansas City, Mo.
Linde Air Products Co, 30 E 42nd St, New York 17, N. Y.
Martin, J O & C U, 637 Minna St, San Francisco 3, Calif.
National Airoil Burner Co, 1276 E Sedgley Ave, Phila 34, Pa.
Natural Gas Equip Inc, 714 W Olympic Blvd, Los Angeles 15.
North America Mfg Co, 4455 E 71st St, Cleveland, Ohio
Orr & Sembower Inc, Reading, Pa.
Peabody Engrg Corp, 580 Fifth Ave, New York, N. Y.
Preferred Utilities Mfg Corp, 1860 Broadway, New York 23, N. Y.
Ray Oil Burner Co, 401 Bernal Ave, San Francisco 12, Calif.
Rockwell, W S Co, 200 Eliot St, Fairfield, Conn.
Staples & Pfeiffer, 528 Bryant St, San Francisco 7, Calif.
Stout, David, & Sons, 7016 Manchester, St Louis 17, Mo.
Surface Combustion Corp, 2375 Dorr St, Toledo 1, Ohio
Todd Shipyards Corp, Combustion Equip Div, 8116 45th Ave, Elmhurst, N. Y.
U. S. Machine Corp, 320 N C St, Lebanon, Ind.
Zink, John Co, 4401 South Peoria, Tulsa 1, Okla.
Zurn, J. A. Mfg Co, 1801 Pittsburgh Ave, Erie, Pa.

BURNERS, GAS AND OIL COMBINED

Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Best, W N, Combustion Equip Co, Route 17, Carlstadt, N. J.
Coen Co, 40 Boardman Pl, San Francisco 3, Calif.
Combustion Engrg-Superheater Inc, 200 Madison Ave, N. Y. 6, N. Y.
Combustion Equip Co, 1820 Cherry St, Kansas City 8, Mo.
Coppus Engrg Corp, 344 Park Ave, Worcester 2, Mass.
Denver Fire Clay Co, P O Box 5510, Denver 17, Colo.
Dutton, C H Co, Portage & Gibson Sts, Kalamazoo, Mich.
Engineer Co, 75 West St, New York 6, N. Y.
Enterprise Engine & Foundry Co, 18th & Florida Sts, San Francisco 10, Calif.
Faber Engrg Co, Amber & Westmoreland Sts, Phila 34, Pa.
Forney Engrg Co, 2705 Hawes St, Dallas, Texas
Hauck Mfg Co, 136 10th St, Brooklyn 15, N. Y.
International Combustion Corp, 436 Pearl St, N. Y., N. Y.
Johnson S T Co, 940 Arlington Ave, Oakland 8, Calif.
Leahy Mfg Co, 1804 E 8th St, Los Angeles 21, Calif.
Lientz, B P Mfg Co, 210 W 8th St, Kansas City, Mo.
Mund Boilers Inc, 1600 N Indiana St, Los Angeles 33, Calif.
National Airoil Burner Co, 1276 E Sedgley Ave, Phila 34, Pa.
Natural Gas Equip Inc, 714 W Olympic Blvd, Los Angeles 15.
North America Mfg Co, 4455 E 71st St, Cleveland, Ohio

Coen Oil & Gas Burners

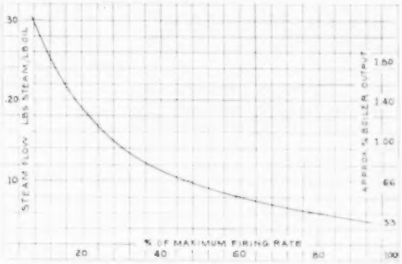
Reduce Your Atomizing Steam Costs

What does it cost to atomize with steam? Possibly more than you think!

We believe most plants use more steam for atomization than they realize (1½% to 3% or over of generation). We believe the *total cost* of steam is more than most plants fully appreciate (40¢ to 75¢ per 1000 lbs. depending on fuel costs and other factors).

We believe you will be interested in the remarkable savings possible with the *new* Coen "MW" Steam Atomizer—an entirely new combination multiple tip pressure atomizing inside mix steam atomizing oil burner.

Installations in ten modern steam generators of 4 major boiler manufacturers, having outputs from 100,000 pph to 225,000 pph, have demonstrated exceptional performance with steam consumption at maximum load only a fraction of 1% (can actually be reduced to zero to demonstrate 100% mechanical atomization).



Steam consumption by actual test on forced draft preheated air installation.

It Is Worthwhile

Steam atomization does have advantages — important advantages in:

Brighter, Sharper, Cleaner Fires
Wider Range
Greater Flexibility
Cleaner Firesides
Lower Stack Temperature
Less Soot Blowing

Why not provide these advantages, now, at a cost of atomizing steam you can justify, with equipment you can't afford to be without?

Write now to your nearest district representative for complete details.

Coen Products

Combination Gas and Oil Burners

Fuel Oil Pumping and Heating Sets

Fuel Oil Pumping, Heating and Straining Sets

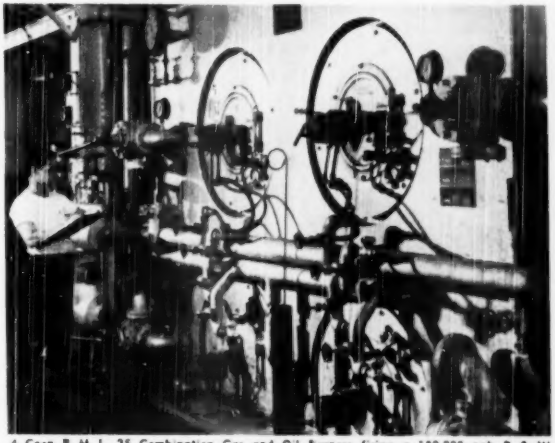
Coen "Multifilm" Oil Heaters

Duplex Strainers

Coen "Safety" Duplex Strainers

Coen "Sleeve" Valves

Automatic Combustion Control

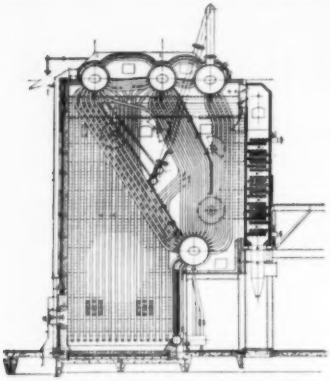


4 Coen B M I—25 Combination Gas and Oil Burners firing a 180,000 pph B & W Boiler providing 10-1 firing range with new "M W" atomizers.

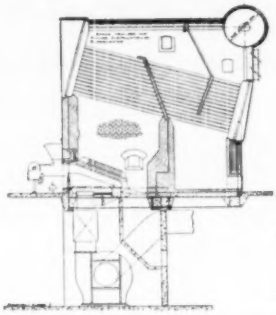
COEN COMPANY
COMBUSTION ENGINEERS DESIGNERS MANUFACTURERS
• EQUIPMENT FOR INDUSTRIAL & MARINE OIL & GAS FUEL SYSTEMS •

Main Offices and Plant at
40 Boardman Place, San Francisco 3, California

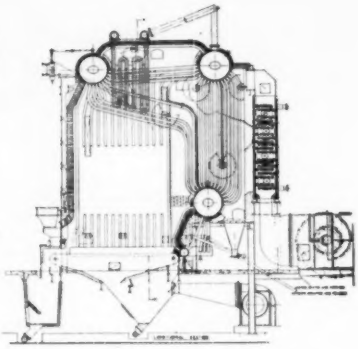
P. O. Box 7, Union City, N. J.
The Walling Co., 1504 Dodge St., Omaha, Neb.
J. Newell Royall, Box 544, Houston, Texas
711 Gibbons St., Los Angeles, Calif.



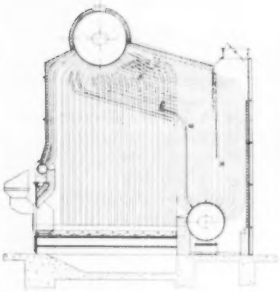
4 Drum Water Tube Boiler



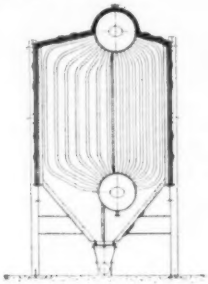
Horizontal Cross or Long Drum Water Tube Boiler



3 Drum "B" Type Water Tube Boiler



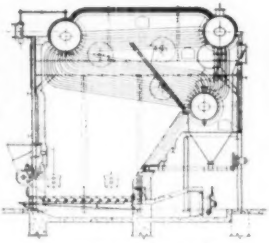
Standard 2-Drum Unit



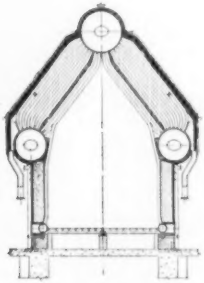
Wickes 2 Drum Waste Heat Installation

WICKES BOILERS

Boilers and pressure vessels designed and manufactured in our plant are converting steam loads into industrial energy in scores of important installations the world over. We have the engineers, manufacturing facilities, and skilled workmen to fill your requirements for boilers of any type up to 250,000 lbs. steam per hour and 850 psi. We also perform all types of heavy welded plate fabrication for oil, chemical, paper, and other industrial use. Send us your problems for expert consultation and recommendation. No obligation, of course.



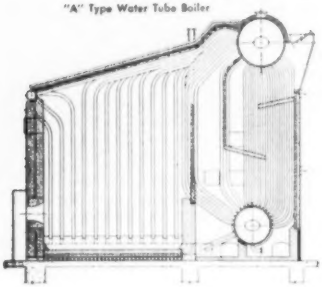
3 Drum Low Head Water Tube Boiler



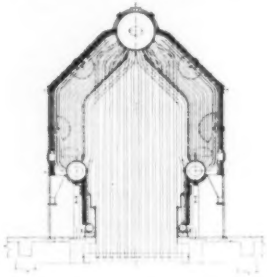
"A" Type Water Tube Boiler

THE WICKES BOILER COMPANY
SAGINAW, MICHIGAN

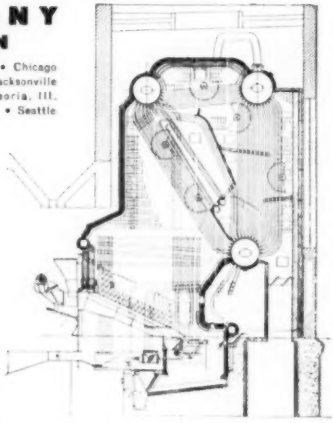
SALES OFFICES: Atlanta • Boston • Charlotte, N. C. • Chicago Denver • Detroit • Fort Worth, Texas • Indianapolis • Jacksonville Los Angeles • Milwaukee • New York City • Peoria, Ill. Pittsburgh • Saginaw • San Francisco • San Jose, Calif. • Seattle St. Louis • Tulsa, Okla. • Mexico City.



2 Drum Water Tube Boiler



Crown "A" Type Water Tube Boiler



3 Drum Water Tube Boiler

Orr & Sembower Inc. Reading. Pa.
Peabody Engrg Corp. 580 Fifth Ave. New York. N. Y.
Preferred Utilities Mfg Corp. 1860 Broadway. New York 23, N. Y.
Ray Oil Burner Co. 401 Bernal Ave. San Francisco 12. Calif.
Rockwell. W S Co. 200 Eliot St. Fairfield. Conn
Simplex Oil Heating Corp. 11 Park Place. New York 7. N. Y.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Surface Combustion Corp. 2375 Dorr St. Toledo 1. Ohio
Todd Shipyards Corp. Combustion Equip Div. 8116 45th Ave. Elmhurst. N. Y.
Zink. John Co. 4401 South Peoria. Tulsa 1. Okla.

BURNERS, OIL

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Best. W N. Combustion Equip Co. Route 17. Carlstadt. N. J.
Bogue Electric Co. 52 Iowa Ave. Paterson 3. N. J.
Chicago Stoker Co. 4711 W North Ave. Chicago 39. Ill.
Clark National Oil Burner Co. 554 Vanderbilt Ave. Brooklyn 17. N. Y.
Cleaver-Brooks Co. 326 E Keefe Ave. Milwaukee 12. Wis.
Coen Co. 40 Boardman Pl. San Francisco 3. Calif.
Combustion Equip Co. 1820 Cherry St. Kansas City 8. Mo.
Connery Construction Co. 2nd & Luzerne Sts. Phila 40. Pa.
Coppus Engrg Corp. 344 Park Ave. Worcester 2. Mass.
Crotty Mfg Co. 133-15 35th Ave. Flushing. N. Y.
Denver Fire Clay Co. P O Box 5510. Denver 17. Colo.
Dutton. C H Co. Portage & Gibson Sts. Kalamazoo. Mich.
Eddy Stoker Corp. 4711 North Ave. Chicago 39. Ill.
Engineer Co. 75 West St. New York 6. N. Y.
Enterprise Engine & Foundry Co. 18th & Florida Sts. San Francisco
Esso Standard Oil Co. 15 W 51st St. New York 19. N. Y.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Forney Engrg Co. 2705 Hawes St. Dallas. Texas
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield. N. J.
Geroter May Corp. Maryland & Oliver Sts. Baltimore 3. Md.
Godfrey-Keeler Co. 1 Hudson St. New York 13. N. Y.
Hajoca Corp. 31st & Walnut Sts. Philadelphia 4. Pa.
Hammel Oil Burner Co. 108 W 6th St. Los Angeles 14. Calif.
Hauck Mfg Co. 136 10th St. Brooklyn 15. N. Y.
Inferno Co. 115 Ricou St. Shreveport. La.
International Combustion Corp. 436 Pearl St. N. Y. N. Y.
Iron Fireman Mfg Co. 3170 W 106th St. Cleveland 11. Ohio
Johnson. S T Co. 940 Arlington Ave. Oakland 8. Calif.
Kennedy Van Saun Mfg & Engrg Co. 2 Park Ave. N. Y. 16. N. Y.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Lientz. B P Mfg Co. 210 W 8th St. Kansas City. Mo.
Lockett. A M & Co. Ltd. Whitney Bldg. New Orleans 12. La.
Mund Boilers Inc. 1600 N Indiana St. Los Angeles 33. Calif.
National Airoil Burner Co. 1276 E Sedgley Ave. Phila 34. Pa.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15. Calif.
North America Mfg Co. 4455 E 71st St. Cleveland. Ohio
Orr & Sembower Inc. Reading. Pa.
Peabody Engrg Corp. 580 Fifth Ave. New York. N. Y.
Petroleum Heat & Power Co. Stamford. Conn.
Preferred Utilities Mfg Corp. 1860 Broadway. New York 23. N. Y.
Ray Oil Burner Co. 401 Bernal Ave. San Francisco 12. Calif.
Rockwell. W S Co. 200 Eliot St. Fairfield. Conn.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22. Pa.
Silent Glow Oil Burner Corp. 850 Windsor St. Hartford 3. Conn.
Simplex Oil Heating Corp. 11 Park Place. New York 7. N. Y.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Superior Combustion Industries. Inc. Times Bldg. New York 18. N. Y.
Todd Shipyards Corp. Combustion Equip Div. 8116 45th Ave. Elmhurst. N. Y.
U. S. Machine Corp. 30 N C Street. Lebanon. Ind.
York-Shipley Inc. York. Pa.
Zink. John Co. 4401 South Peoria. Tulsa 1. Okla.

BURNERS, PULVERIZED-COAL

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 6. N. Y.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Peabody Engrg Corp. 580 Fifth Ave. New York. N. Y.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Sims Co. 1402 E 18th St. Erie. Pa.
Strong-Scott Mfg Co. Northwestern Terminal. Minneapolis 13. Minn.

BURNERS, PULVERIZED-COAL OIL AND GAS COMBINED

Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Combustion Engrg Co Inc. 200 Madison Ave. New York 6. N. Y.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
International Combustion Corp. 436 Pearl St. N. Y., N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Peabody Engrg Corp. 580 Fifth Ave. New York. N. Y.
Riley Stoker Corp. 9 Neponset St. Worcester. Mass.
Sims Co. 1402 E 18th St. Erie. Pa.
Strong-Scott Mfg Co. Northwestern Terminal. Minneapolis 13. Minn.

BUSES, ELECTRIC

American Brass Co. 25 Broadway. New York 4. N. Y.
Bull Dog Electric Products Co. 7610 Jos Campau. Detroit 32. Mich.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
Delta-Star Electric Co. 2400 Fulton St. Chicago 12. Ill.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
I-T-E Circuit Breaker Co. 19th & Hamilton Sts. Phila 30. Pa.
National Electric Products Corp. Chamber of Commerce Bldg. Pittsburgh 19. Pa.
Trumbull Electric Mfg Co. 39 Woodford Ave. Plainville. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

CARS, COAL AND ASH

Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Bethlehem Steel Co. Bethlehem. Pa.
Gifford-Wood Co. Hudson. N. Y.

CELLS, PHOTOELECTRIC

General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. New York 17. N. Y.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

CEMENT, ACID-RESISTANT

Bakelite Div. Union Carbide & Carbon Corp. 30 E 42nd St. New York 17. N. Y.
Custodis. Alphons. Chimney Constr Co. 25 Broadway. N. Y. 4. N. Y.
Laclede Christy Co. Ambassador Bldg. St Louis 1. Mo.
Lumnite Div. Universal Atlas Cement Co. 135 E 42nd St. N. Y. 17. N. Y.
Magic Chemical Co. 121 Crescent St. Brockton 2. Mass.
National Carbon Co. Inc. 30 E 42nd St. New York 17. N. Y.
Pennsylvania Salt Mfg Co. 1000 Widener Bldg. Phila., Pa.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.

CEMENT, BELT

Baldwin Belting Inc. 74-76 Murray St. New York 7. N. Y.
Bond. Charles. Co. 617-623 Arch St. Phila 6. Pa.
Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
duPont deNemours. E I & Co. Inc. Wilmington 98. Del.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Graton & Knight Co. 356 Franklin St. Worcester 4. Mass.
Houghton. E F & Co. 303 W Lehigh Ave. Phila 33. Pa.
Magic Chemical Co. 121 Crescent St. Brockton 2. Mass.
Monsanto Chemical Co. 1700 S Second St. St Louis 4. Mo.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Rhoads. J E & Sons. 35 N 6th St. Phila 6. Pa.
Schieren. Chas A Co. 30 Ferry St. New York 7. N. Y.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Williams. I B. & Sons. 51 Washington St. Dover. N. H.

CEMENT, INSULATING, HEAT

Arco Co. 7301 Bessemer Ave. Cleveland 4. Ohio
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bakelite Div. Union Carbide & Carbon Corp. 30 E 42nd St. New York 17. N. Y.
Baldwin-Hill Co. 500 Breunig Ave. Trenton 2. N. J.
Botfield Refractories Co. 784 S Swanson St. Phila 47. Pa.
Carborundum Co. Perth Amboy. N. J.
Carey. Philip. Mfg Co. Lockland. Cincinnati 15. Ohio
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22. Ill.
Denver Fire Clay Co. P O Box 5510. Denver 17. Colo.
Eagle-Picher Co. American Bldg. Cincinnati 1. Ohio
Ehret Magnesia Mfg Co. Valley Forge. Pa.
Green. A F. Fire Brick Co. Mexico. Mo.
Gunite Concrete & Constr Co. 1301 Woodswether Rd. Kansas City 6. Mo.
Harbison-Walker Refractories Co. Farmers Bank Bldg. Pittsburgh 22. Pa.
Johns-Manville. 22 East 40th St. New York 16. N. Y.
Kaylo Div. Owens-Illinois Glass Co. P O Box 1035. Toledo 1. Ohio
Keasby & Mattison Co. Butler Ave. Ambler. Pa.
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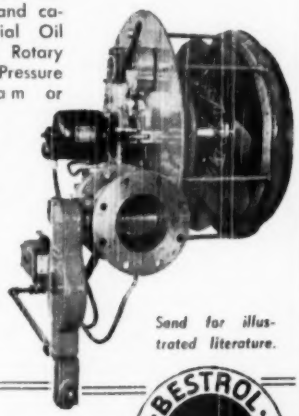

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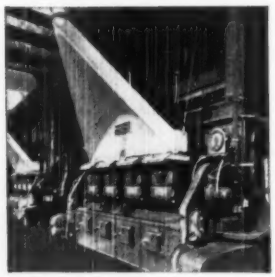

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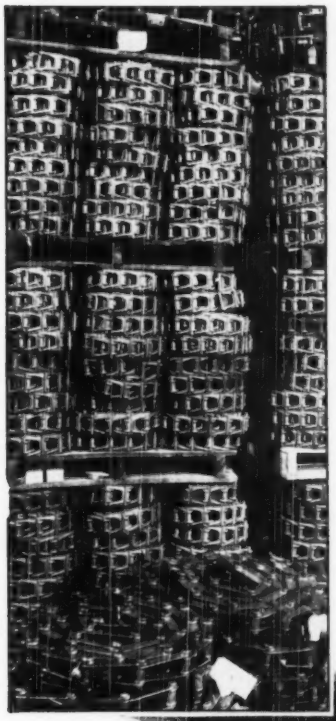

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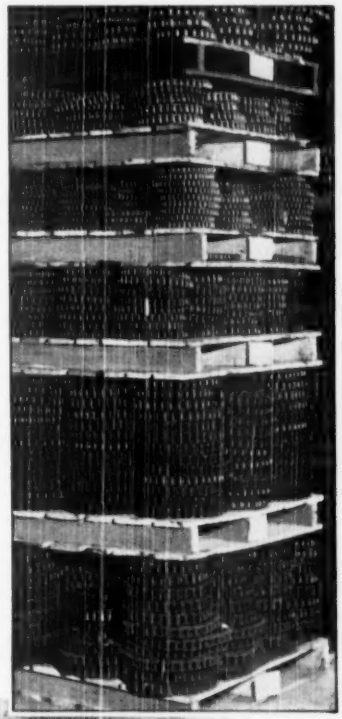

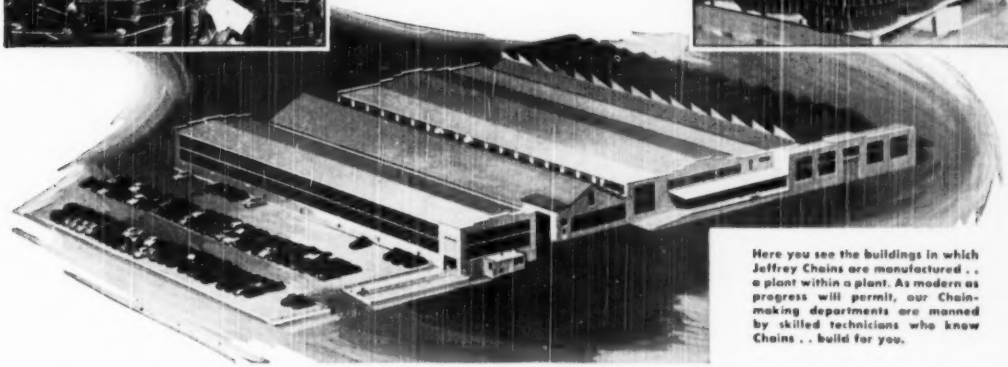

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Cleco Div. Reed Roller Bit Co. P O Box 2119, Houston 1, Texas
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Homestead Valve Mfg Co. P O Box 210, Coraopolis, Pa.
Hose Accessories Co. Lehigh Ave & 17th St. Phila 32, Pa.
Lunkenheimer Co. P O Box 360, Annex Station, Cincinnati 14
Mueller Co. 512 W Cerro Gordo St. Decatur 70, Ill.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34, Pa.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12, Ohio
Paul Valve Corp. 683 Third Ave. New York 17, N. Y.
Pittsburgh Valve & Fittings Corp. Barberton, Ohio
Powell, Wm. Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Swift Lubricator Co Inc. 100 Home St. Elmira, N. Y.
Walworth Co. 60 E 42nd St. New York 17, N. Y.

COCKS, BLOWOFF

American Car & Foundry Co. 30 Church St. N. Y. 7, N. Y.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Fairbanks Co. 393 Lafayette St. New York 3, N. Y.
Homestead Valve Mfg Co. P O Box 210, Coraopolis, Pa.
Paul Valve Co. 683 Third Ave. New York 17, N. Y.
R-P & C Div. American Chain & Cable Co Inc. Reading, Pa.
Wilson Engrg Corp. 122 S Michigan Ave. Chicago, Ill.

COCKS, GAGE

American Car & Foundry Co. 30 Church St. N. Y. 7, N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis, Mo.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston, N. J.
Helicoid Div. American Chain & Cable Co. Inc. Bridgeport 7, Conn.
Huyette, Paul B. Co Inc. 401 N Broad St. Phila 8, Pa.
Inferno Co. 115 Ricou St., Shreveport, La.
Jerguson Gage & Valve Co. 87 Fellsway, Somerville, Mass.
Lonergan, J E Co. 209 Race St. Phila 6, Pa.
Lunkenheimer Co. P O Box 360, Annex Station, Cincinnati 14
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Marsh, Jas P. Corp. Skokie, Ill.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12, Ohio
Powell, Wm. Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Reliance Guage Column Co. 5902 Carnegie Ave. Cleveland 3, Ohio
Swift Lubricator Co Inc. 100 Home St. Elmira, N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
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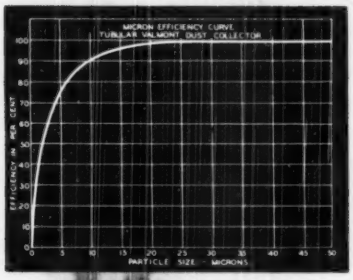
Associated Piping & Engrg Co Inc. P O Box 590, Compton, Calif.
Boiler Tube Co of America, McKees Rocks, Pa.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20, Conn.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Frick Co, W Main St. Waynesboro, Pa.

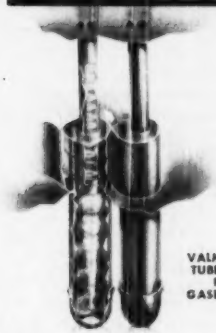
THE VALMONT TYPE S COLLECTOR

CATALOG DIGEST

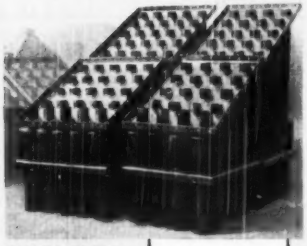
The following information is taken from the New Bulletin on P-D Valmont Type S Collector. For Complete Bulletin containing dimension tables, sizes, nomographs and suggested installation plans, write our Project and Sales Engineers.



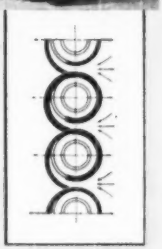
P-D EFFICIENCY CURVE



VALMONT TYPE S TUBES SHOWING FLOW OF GASES AND INLET



HORIZONTAL TYPE TUBE SHEET SECTIONS KNOWN AS "UNI-BLOCS"



METHOD OF NESTING TUBES—REDUCES TURBULENCE . . . SAVES SPACE

HIGH EFFICIENCY—The outstanding contribution to higher efficiency in the P-D Valmont Type S is the inlet slot design. A patented development of Prat-Daniel, this inlet is high and narrow, reducing the radial distance of dust-travel. To explain its effect on dust collection, we quote from Cyclone Dust Collector Design, by Melvin W. First, Paper No. 49-A-127, presented at the Annual Meeting of the American Society of Mechanical Engineers, Nov. 27—Dec. 2, 1949, page 14.

> "Entry width is an important variable in cyclone efficiency, as it controls the stream width. This, in turn, directly controls the radial distance particles must traverse to reach the cyclone wall and be separated by centrifugal force. The smaller the radial distance to be traversed, the lower the tangential velocity needed (less energy loss) and the smaller the particle that can be successfully separated for a given flow rate."

LONG LIFE—Extensive tests were made to determine the wear factor. All types of abrasive dusts were run at accelerated speeds, against various metals simultaneously and steel proved to be the most resistant to erosion.

Another long life factor is the lower velocity required due to the small tube diameter. It is a well-known fact that reduction of tube diameter produces higher centrifugal force. Thus, efficiencies are maintained at the lower load ranges.

MASS PRODUCTION METHODS—The P-D method of "uni-bloc" construction permits manufacture and assembly of sub-sections at the factory. These are shipped to the field and easily erected, either vertically or horizontally, to fit the layout. Savings in cost of erection are thus realized yet the collector is "tailor assembled" to fit the installation requirements.

SMALL SPACE FACTOR—Because of close nesting of tubes possible in P-D Valmont Type S Collectors, the space required for this apparatus is much less than conventional collectors. In many cases, P-D units have been fitted into spaces that could accommodate no other type.

The Thermix Corporation, our Sales and Project Engineers are specialists in the art of dust collection. Consult them about your dust problems.

Project and Sales Engineers

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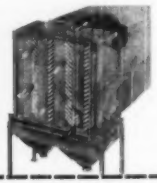
DUST COLLECTORS for EVERY *Application*

The Aerotec background in dust control covers the entire range of applications, from collection of extremely fine particles and condensate in pressure lines, to large power plant installations, gas scrubbers and air cleaners.

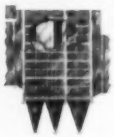
The following classifications of the family of Aerotec Dust Collectors cover practically the entire field of dust collection problems. Aerotec offers you this broad coverage, only possible with equipment designed for each specific use.



AEROTEC MECHANICAL, DESIGN 3 RAS . . . Tubes of this collector are permanent mold cast aluminum, assembled into standard unit building blocks. These building blocks may be assembled horizontally or vertically, to fit crowded spaces often found in existing plants.

Small diameter tubes (3″), offer exceptional efficiencies on extremely fine pulverized fuel fly ash.

Installed alone, its efficiency meets most stringent dust ordinances in effect today. For increasing efficiency, its outlet provides the perfect inlet for an Aerotec Electrical secondary, which may be installed at a later date.



AEROTEC ELECTRICAL PRECIPITATOR . . . A complete collector in itself, the Aerotec Electrical may be used as a secondary to the Aerotec Mechanical when highest efficiency is required.

Aerotec Pocket type design insures a dead zone around the collecting electrodes. This and individual rapping of electrodes materially reduce reentrainment of dust particles.

AEROTEC SERIES COLLECTORS . . . This unit, composed of an Aerotec Mechanical and Aerotec Electrical provides the ultimate in efficiency on all types of dusts. The design of this collector offers minimum weight and space per c.f.m. and a flat efficiency vs. load response curve. Where the Aerotec Mechanical primary will meet present dust ordinances, it may be installed first, with provisions for future installation of the Aerotec Electrical secondary, when regulations require.

Undivided responsibility offers an assurance of continued, efficient performance.

AEROTEC GAS SCRUBBERS . . . Installations on the "Big Inch" have proved the superiority of Aerotec's "Dry" method of gas scrubbing. Many small installations "at the well" now provide complete removal of both dust and liquid.

OTHER PRODUCTS

Based on the Aerotec principle, applications in many other fields are in operation today. Scores of Aerotec Integral collectors operate on grinding and buffing machines. Air cleaners by Aerotec provide higher efficiencies and the application of this principle to pill machines has reclaimed thousands of dollars in expensive powders.

These installations are project engineered by The Thermix Corp. We suggest that you write them about your dust problems. Their experience will be invaluable in finding a solution to your dust collection problem.

Project and Sales Engineers

THE THERMIX CORPORATION

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National Valve & Mfg Co. 3102 Liberty Ave. Pittsburgh 1. Pa.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12. Ohio
Patterson-Kelley Co Inc. 129 Burson St. East Stroudsburg. Pa.
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Sturtevant Div. Westinghouse Electric Corp. Hyde Park. Boston 36. Mass.
Whitlock Mfg Co. 46 South St. Hartford 1. Conn.
York Corp. York. Pa.

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Davis Engrg Corp. 1064 E Grand St. Elizabeth 4. N. J.
Fedders-Quigan Corp. 57 Tonawanda St. Buffalo 7. N. Y.
Frick Co. W Main St. Waynesboro. Pa.
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Rempe Co. 340 N Sacramento Blvd. Chicago 12. Ill
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Trane Co. LaCrosse. Wis.
Vogt, Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Whitlock Mfg Co. 46 South St. Hartford 1. Conn.
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Research Corp. 405 Lexington Ave. New York 17. N. Y.
Sturtevant Div Westinghouse Elec Corp. Hyde Park. Boston. Mass.
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Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

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Aerotec Corp. Greenwich. Conn.
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American Blower Corp. Detroit 32. Mich.
American Wheelabrator & Equip Corp. 744 S Byrkit St. Mishawaka. Ind.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Brady Conveyors Corp. 20 W Jackson Blvd. Chicago 4. Ill.
Breuer Electric Mfg Co. 5100 N Ravenswood Ave. Chicago 40. Ill.
Bubar Dust Systems. Inc. Beckwith Lane. Old Lyme. Conn.
Buell Engrg Co. Inc. 70 Pine St. New York 5. N. Y.
Diamond Power Specialty Corp. Lancaster. Ohio
Fly Ash Arrestor Corp. PO Box 1883. Birmingham 1. Ala.
Green Fuel Economizer Co Inc. 627 Main St. Beacon. N. Y.
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Magic Chemical Co. 121 Crescent St. Brockton 2. Mass.
Magnus Chemical Co Inc. South Ave. Garwood. N. J.
Monsanto Chemical Co. 1700 S Second St. St. Louis 4. Mo.
Oakite Products. Inc. 22 Thames St. New York 6. N. Y.
Paraffine Companies. Inc. 475 Brannan St. San Francisco 19. Calif.
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Pennsylvania Salt Mfg Co. 1000 Widener Bldg. Phila., Pa.
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Sexauer. J A Mfg Co. Inc. 2503 3rd Ave. New York 51. N. Y.
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Dura-Tred Co. 353 N Central Park Blvd. Chicago 24. Ill.
Flexrock Co. 3677 Filbert St. Phila 4. Pa.
Flintkote Co. 30 Rockefeller Plaza. New York 20. N. Y.
Horn. A C Co Inc. Tenth St. & 44th Ave. Long Island City 1. N. Y.
Koppers Co Inc. Koppers Bldg. Pittsburgh 19. Pa.
Paraffine Companies. Inc. 475 Brannan St. San Francisco 19. Calif.
Smooth-On Mfg Co. 572 Communipaw Ave. Jersey City 4. N. J.
Stonhard Co. 1306 Spring Garden St. Phila 23. Pa.
Tremco Mfg Co. 8701 Kinsman Rd. Cleveland. Ohio

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Flexrock Co. 3677 Filbert St. Phila 4. Pa.
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Magnus Chemical Co Inc. South Ave. Garwood. N. J.
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Monsanto Chemical Co. 1700 S Second St. St Louis 4. Mo.
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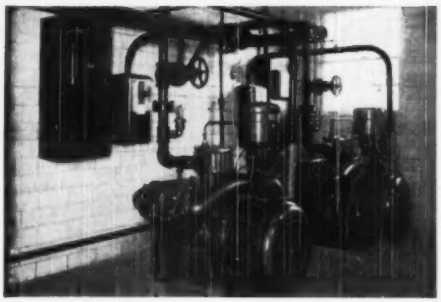
INGERSOLL-RAND COMPRESSORS

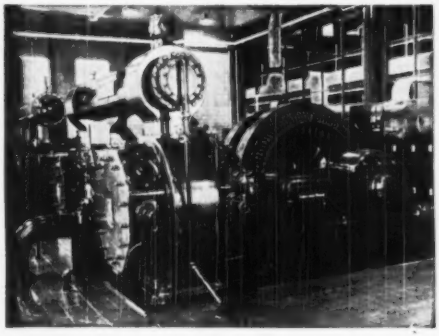


★ Each I-R Compressor is designed to economically meet some particular kind of service better than any other type; to provide electric-motor, steam, belt, or gas-engine drive. Some are strictly air compressors; other handle gases of practically every description.

There are compressors for the permanent, stationary installation; stationary units incorporating features for easy relocation, and highly portable units for the transient job.

Each type is built in a complete range of sizes. In fact, the whole field of compressor needs, ranging from vacuums to 15,000 psi pressure and sizes from ¼ to 3000 hp is covered by the I-R line.

The majority of compressor installations use oil for cylinder lubrication. For boiler instrument control and various process applications we have nonlubricated cylinders of patented design. The use of special carbon wearing and piston rings dispenses with the need for any liquid or grease lubricant. These nonlubricated compressors insure freedom from sticking and a reduction in maintenance throughout the entire control system.



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X-Pando Corp, 43 36th St, Long Island City 1, N. Y.
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Bird-Archer Co, 400 Madison Ave, New York 17, N. Y.
Borne-Scrymser Co, 632 S Front St, Elizabeth, N. J.
Brooks Boiler Treatment Co, 3304 E 87 St, Cleveland, Ohio
Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Cities Service Oil Co, 70 Pine St, New York 5, N. Y.
Continental Asbestos & Refining Corp, 1 Madison Ave, N. Y. 10, N. Y.
Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill.
Dominion Chemical Co Inc, 11 W 42nd St, Dept A, N. Y 18, N. Y
Drew, E F, & Co Inc, 15 E 26th St, New York 10, N. Y.
duPont deNemours, E I & Co, Wilmington 98, Del.
Electromatic Water Treatment Inc, 475 Fifth Ave, New York 17, N. Y.
Esso Standard Oil Co, 15 W 51st St, New York 19, N. Y.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Flintkote Co, 30 Rockefeller Plaza, New York 20, N. Y.
Freedom-Valvoline Oil Co, Freedom, Pa.
Goodall Rubber Co, Whitehead Rd, Trenton 4, N. J.
Gulf Oil Corp, Gulf Refining Co, 3800 Gulf Bldg, Pittsburgh 30, Pa.
Haering, D W & Co, 205 W Wacker Dr, Chicago 6, Ill.
Horn, A C Co, Inc, Tenth St & 44th Ave, Long Island City 1, N. Y.
Houghton, E F & Co, 303 W Lehigh Ave, Phila 33, Pa.
Inertol Co Inc, 480 Frelinghuysen Ave, Newark 5, N. J.
Kano Laboratories, 5785 Milwaukee Ave, Chicago 1, Ill.
Kelite Products Inc, Box 2917 Terminal Annex, Los Angeles 54, Calif.
Keystone Lubricating Co, 21st & Clearfield Sts, Phila 32, Pa.
Magic Chemical Co, 121 Crescent St, Brockton 2, Mass.
Magnus Chemical Co Inc, South Ave, Garwood, N. J.
Mortell J W Co, Kankakee, Ill.
Oakite Products, Inc, 22 Thames St, New York 6, N. Y.
Paraffine Companies, Inc, 475 Brannan St, San Francisco 19, Calif.
Pennsylvania Refining Co, 2686 Lisbon Rd, Cleveland 4, Ohio
Pennsylvania Salt Mfg Co, 1000 Widener Bldg, Phila., Pa.
Perolin Co Inc, 10 E 40th St, New York 16, N. Y.
Philadelphia Quartz Co, 1146 Public Ledger Bldg, Phila 6, Pa.
Polyphase Chemical Services, Inc, 254 W 54 St, N Y C, N. Y.
Pure Oil Co, 35 E Wacker Drive, Chicago 1, Ill.
Quigley Co Inc, 527 Fifth Ave, New York 17, N. Y.
Rustvoid Products, Inc, 9 Murray St, New York 7, N. Y.
Saverite Engrg Co, 1032 Willow Ave, Hoboken, N. J.
Sexauer, J A Mfg Co, Inc, 2503 3rd Ave, New York 51, N. Y.
Shell Oil Co Inc, 50 W 50th St, New York 20, N. Y.
Skybryte Co, 3125 Perkins Ave, Cleveland 14, Ohio
Socony-Vacuum Oil Co, 26 Broadway, New York 4, N. Y.
Sonneborn, L Sons Inc, New York 10, N. Y.
Speco Co, 7308 Associate Ave, Cleveland 9, Ohio
Standard Chemicals Inc, 36 Summer St, Natick, Mass.
Standard Oil Co, Indiana, 910 S Michigan Ave, Chicago 80, Ill.
Stonhard Co, 1306 Spring Garden St, Phila 23, Pa.
Sun Oil Co, 1608 Walnut St, Phila 3, Pa.
Swan-Finch Oil Corp, 30 Rockefeller Plaza, New York 20, N. Y
Tide Water Associated Oil Co, 17 Battery Place, New York 4, N. Y.
Texas Co, 135 E 42nd St, New York 17, N. Y.
Tremco Mfg Co, 8701 Kinsman Rd, Cleveland 4, Ohio
Warren Brothers Roads Co, 38 Memorial Dr, Cambridge 42, Mass.
Western Chemical Co, 713 Washington St, Kansas City 6, Mo.
Wright Chemical Corp, 617 W Lake St, Chicago 6, Ill.
Xzit Chemical Co, 158-14th St, Hoboken, N. J.

COMPOUNDS, SCALE, RUST-REMOVING

Alken-Murray Corp, 131 E. 23rd St, New York 10, N. Y.
American K A T Corp, Garwood, N. J.
American - Marietta Co, Pacific Chemical Div, 114 W College St, Los Angeles, Calif.
American Sand-Banum Co, Inc, 9 Rockefeller Plaza, N. Y. 20, N. Y.
Betz, W H & L D, Gillingham & Worth Sts, Philadelphia 24, Pa.
Bird-Archer Co, 400 Madison Ave, New York 17, N. Y.
Brooks Boiler Treatment Co, 3304 E 87 St, Cleveland, Ohio
Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Continental Asbestos & Refining Corp, 1 Madison Ave, N. Y. 10, N. Y.
Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill.
Dominion Chemical Co Inc, 11 W 42nd St, Dept A, N Y C 18, N. Y.
Drew, E F, & Co Inc, 15 E 26th St, New York 10, N. Y.
du Pont de Nemours, E I & Co, Inc, Wilmington 98, Del.
Electromatic Water Treatment Inc, 475 Fifth Ave, New York 17, N. Y.
Elgin Softener Corp, 130 N Grove Ave, Elgin, Ill.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Freedom-Valvoline Oil Co, Freedom, Pa.
Haering, D W & Co, 205 W Wacker Dr, Chicago 6, Ill.
Houghton, E F & Co, 303 W Lehigh Ave, Phila 33, Pa.
Kano Laboratories, 5785 Milwaukee Ave, Chicago 1, Ill.
Kelite Prod Inc, Box 2917, Terminal Annex, Los Angeles 54, Calif.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
Magnus Chemical Co Inc, South Ave, Garwood, N. J.
Monsanto Chemical Co, 1700 S Second St, St Louis 4, Mo.
Oakite Products, Inc, 22 Thames St, New York 6, N. Y.
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Perolin Co Inc, 10 E 40th St, New York 16, N. Y.
Polyphase Chemical Services Inc, 254 W 54 St, New York, N. Y
Portland Shingle Co, 9038 N Denver Ave, Portland 17, Ore.
Saverite Engrg Co, 1032 Willow Ave, Hoboken, N. J.

Sexauer, J A Mfg Co. Inc. 2503 3rd Ave. New York 51, N. Y.
Skybryte Co. 3125 Perkins Ave. Cleveland 14, Ohio
Standard Chemicals Inc. 36 Summer St. Natick, Mass.
Suhm Co. 4701 W Electric Ave. Milwaukee 14, Wis.
Water Treatment Co of America. 1159 Hodgkiss St. Pittsburgh 12, Pa.
Western Chemical Co. 713 Washington St. Kansas City 6, Mo.
Wright Chemical Corp. 617 W Lake St. Chicago 6, Ill.

COMPOUNDS, SLUDGE SOFTENING

Alladdin Labs Inc. 68 William St. New York 5, N. Y.
Alken-Murray Corp. 131 E 23rd St. New York 10, N. Y.
American K A T Corp. Garwood, N. J.
American - Marietta Co. Pacific Chemical Div. 114 W College St. Los Angeles, Calif.
Bird-Archer Co. 400 Madison Ave. New York 17, N. Y.
Brooks Boiler Treatment Co. 3304 E 87 St. Cleveland, Ohio
Dominion Chemical Co Inc. 11 W 42nd St. Dept A. N. Y. 18, N. Y.
Drew, E F. & Co Inc. 15 E 26th St. New York 10, N. Y.
Elgin Softener Corp. 130 N Grove Ave. Elgin, Ill.
Esso Standard Oil Co. 15 W 51st St. New York 19, N. Y.
Feedwaters, Inc. 140 Cedar St. New York 6, N. Y.
Kano Laboratories. 5785 Milwaukee Ave. Chicago 1, Ill.
Kelite Prod Inc. Box 2917 Terminal Annex. Los Angeles 54, Calif.
Madden, P E & Co. 352 W Walton St. Chicago 10, Ill.
Magnus Chemical Co Inc. South Ave, Garwood, N. J.
Maxfal Chemical Co. 33 W 42nd St. New York 18, N. Y.
Nutmeg Chemical Co. 134 Haven St. New Haven 10, Conn.
Oakite Products, Inc. 22 Thames St. New York 6, N. Y.
Pennsylvania Refining Co. 2686 Lisbon Rd. Cleveland 4, Ohio
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Perolin Co Inc. 10 E 40th St. New York 16, N. Y.
Polyphase Chemical Services, Inc. 254 W 54 St. N Y C. N. Y.
Preferred Utilities Mfg Corp. 1860 Broadway. New York 23, N. Y.
Saverite Engrg Co. 1032 Willow Ave. Hoboken, N. J.
Sexauer, J A Mfg Co. Inc. 2503 3rd Ave. New York 51, N. Y.
Standard Chemicals Inc. 36 Summer St. Natick, Mass.
Xzit Chemical Co. 158-14th St. Hoboken, N. J.

COMPOUNDS, WATER-PROOFING

Alladdin Labs Inc. 68 William St. New York 5, N. Y.
American-Marietta Co. 43 E Ohio St. Chicago 11, Ill.
Arco Co. 7301 Bessemer Ave. Cleveland 4, Ohio
Bakelite Div. Union Carbide & Carbon Corp. 30 E 42nd St. New York 17, N. Y.
Baldwin-Hill Co. 501 Klagg Ave. Trenton 2, N. J.
Carey, Philip Mfg Co. Lockland, Cincinnati 15, Ohio
Continental Asbestos & Refining Corp. 1 Madison Ave. N.Y. 10, N Y.
Dow Corning Corp. Midland, Mich.
Esso Standard Oil Co. 15 W 51st St. New York 19, N. Y.
Flexrock Co. 3677 Filbert St. Phila 4, Pa.
Flintkote Co. 30 Rockefeller Plaza. New York 20, N. Y.
Horn, A C Co Inc. Tenth St & 44th Ave. Long Island City 1, N. Y.
Inertol Co Inc. 480 Frelinghuysen Ave. Newark 5, N. J.
Johns-Manville. 22 East 40th St. New York 16, N. Y.
Koppers Co Inc. Koppers Bldg. Pittsburgh 19, Pa.
Magic Chemical Co. 121 Crescent St. Brockton 2, Mass.
Paraffine Companies, Inc. 475 Brannan St. San Francisco 19, Calif.
Perolin Co Inc. 10 E 40th St. New York 16, N. Y.
Socony-Vacuum Oil Co. 26 Broadway. New York 4, N. Y.
Sonneborn, L Sons Inc. New York 10, N. Y.
Standard Oil Co of Calif. 225 Bush St. San Francisco 20, Calif.
Stonhard Co. 1306 Spring Garden St. Phila 23, Pa.
Tremco Mfg Co. 8701 Kinsman Rd. Cleveland, Ohio
Western Chemical Co. 713 Washington St. Kansas City 6, Mo.
X-Pando Corp. 43-15 36th St. Long Island City 1, N. Y.
Xzit Chemical Co. 158-14th St. Hoboken, N. J.

COMPRESSORS, AIR, GAS, AXIAL

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Clark Bros Co. Inc. Olean, N. Y.
Curtis Mfg Co. 1905 Kienlen Ave. St Louis 20, Mo.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Schramm Inc. West Chester, Pa.
Worthington Pump & Machy Corp. Harrison, N. J.

COMPRESSORS, AIR, GAS, CENTRIFUGAL

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clark Bros Co. Inc. Olean, N. Y.
Davey Compressor Co. Kent, Ohio
DeLaval Steam Turbine Co. Trenton 2, N. J.
Elliott Co. Jeannette, Pa.
Ingersoll-Rand Co. 11 Broadway. New York 4, N. Y.
Lamson Corp. Lamson St. Syracuse 1, N. Y.
Roots-Connersville Blower Corp. 900 West Mount Street. Connersville, Ind.
Sturtevant Div. Westinghouse Electric Corp. Hyde Park. Boston 36, Mass.
Trane Co. LaCrosse, Wis.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30, Pa.
Worthington Pump & Machy Corp. Harrison, N. J.
York Corp. York, Pa.

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Cooper-Bessemer Corp. Mount Vernon, Ohio
Curtis Pneumatic Mach Co. 1934 Kienlen Ave. St Louis 20, Mo.
DeVilbiss Co. 300 Phillips Ave. Toledo 1, Ohio
Frick Co. W Main St. Waynesboro, Pa.
Gardner-Denver Co. Quincy, Ill.
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Nordberg Mfg Co. 3073 S Chase Ave. Milwaukee 7, Wis.
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Union Steam Pump Co. Battle Creek, Mich.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30, Pa.
Worthington Pump & Machy Corp. Harrison, N. J.
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Fuller Co. 120 Bridge St. Catasauqua, Pa.
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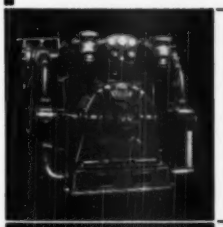

WN-114—Heavy-duty, continuous service, two stage, double acting, four cylinder, water-cooled type. 1092 to 1828 CFM. Maximum pressure of 125 psi. Also twin units—2184 to 3656 CFM.

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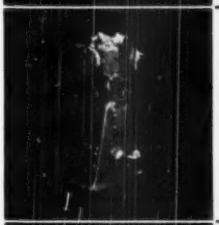
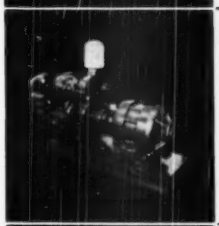
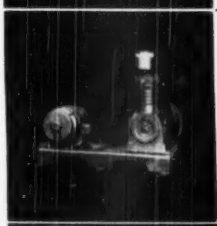


WG-9—Heavy-duty, continuous service, single cylinder, double acting, single stage, water cooled, vertical type. 153 to 822 CFM. Maximum pressure from 30 to 150 psi.



WL-80—Single acting, two stage, air-cooled type. Available in ten sizes from 15 to 125 H.P. 81 to 640 CFM. Maximum pressure of 125 psi. For moderate air requirements.



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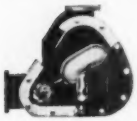

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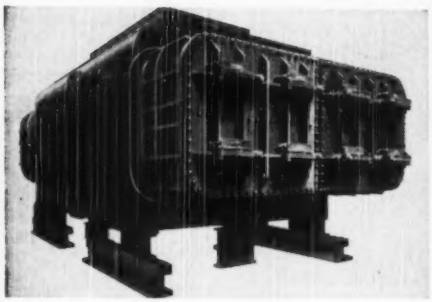
CONDENSERS



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Faber Engrg Co. Amber & Westmoreland Sts. Phila 34, Pa.
Heilman Boiler Wks, 132 Linden St Allentown, Pa.
Livingstone Engrg Co. 100 Grove St, Worcester, Mass.
Mund Boilers Inc. 1600 N Indiana St, Los Angeles 33, Calif.
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Steamaster Automatic Boiler Co. 5819 South Compton Ave, Los Angeles 11, Calif.
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Chicago Pneumatic Tool Co. 6 E 44th St, New York 17, N. Y.
Condenser Service & Engrg Co, Inc. 95 River St, Hoboken, N. J.
Croll-Reynolds Co. Inc. 17 John St, New York 7, N. Y.
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Foster-Wheeler Corp. 165 Broadway New York 6, N. Y.
Henszey Co, 202½ Water St, Watertown, Wis.
Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.
Lummus Co. 259 W 14th St, New York 17, N. Y.
Nooter Corp. 1400 S Second St, St Louis 4, Mo.
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Struthers Wells Corp. Warren, Pa.
Wheeler, C H, Mfg Co. Lehigh & Sedgley Aves. Phila 32, Pa.
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Curtis Mfg Co. 1905 Kienlen Ave. St Louis 20, Mo.
Downingtown Iron Wks Inc. Wallace Ave. Downingtown, Pa.
Frick Co, W Main St, Waynesboro, Pa.
Griscom-Russell Co. 285 Madison Ave, New York 17, N. Y.
Heilman Boiler Wks. 132 Linden St. Allentown, Pa.
Niagara Blower Co. 405 Lexington Ave. New York 17, N. Y.
Nooter Corp. 1400 S 2nd St. St Louis 4, Mo.
Sturtevant, Div Westinghouse Elec Corp. Hyde Park, Boston, Mass.
Titusville Iron Works Co. Div Struthers Wells Corp. Titusville, Pa.
Trane Co. LaCrosse, Wis.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
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Young Radiator Co. 709 S Marquette St, Racine, Wis.

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Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Dominion Chemicals Co. 11 W 42 St, Dept A, New York 18, N. Y.
Fedders-Quigan Corp. 57 Tonawanda St. Buffalo 7, N. Y.
Frick Co. W Main St. Waynesboro, Pa.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
Goodyer Industries. 224 S Michigan Ave. Chicago 4, Ill.
Lummus Co. 259 W 14th St. New York 17, N. Y.
National Pipe Bending Co. 114 River St. New Haven 13, Conn.
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Ready Power Co. 11231 Freud Ave. Detroit, Mich.
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Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Whitlock Mfg Co. 46 South St, Hartford 1, Conn.
Worthington Pump & Machy Corp. Harrison, N. J.
York Corp. York, Pa.

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Allis-Chalmers Mfg Co. 952 S 70th St, Milwaukee 1, Wis.
American Locomotive Co. Schenectady 5, N. Y.
Brown Boveri Corp. 19 Rector St, New York 6, N. Y.
Chloramine Co. 117 W 13th St. New York 11, N. Y.
Condenser Service & Engrg Co, Inc. 95 River St. Hoboken, N. J.
Croll-Reynolds Engrg Co Inc, 17 John St, New York 7, N. Y.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Dominion Chemical Co. 11 W 42 St, Dept A, New York 18, N. Y.
Downingtown Iron Wks Inc, Wallace Ave, Downingtown, Pa.
Elliott Co. Jeannette, Pa.
Filer & Stowell Co. 147 E Becher St, Milwaukee 7, Wis.
Foster Wheeler Corp. 165 Broadway, New York 6, N. Y.
Goodyer Industries. 224 S Michigan Ave. Chicago 4, Ill.
Heilman Boiler Wks. 132 Linden St. Allentown, Pa.
Ingersoll-Rand Co. 11 Broadway, New York 17, N. Y.
Lummus Co. 259 W 14th St. New York 17, N. Y.
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Graybar Electric Co Inc. 420 Lexington Ave. New York 17, N. Y.
Johns-Manville 22 East 40th St. New York 16, N. Y.
Mark, Clayton, & Co. 1900 Dempster St. Evanston, Ill.
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National Supply Co. Grant Bldg. Pittsburgh 30, Pa.
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Youngstown Sheet & Tube Co. Youngstown 1, Ohio

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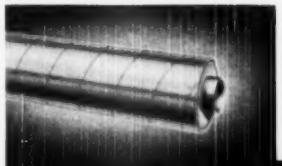

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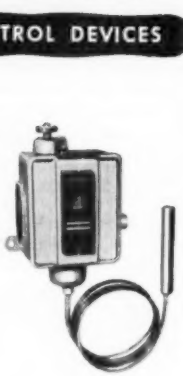

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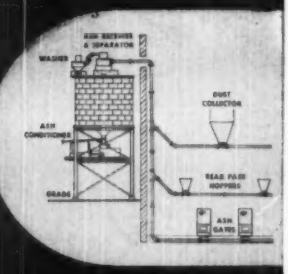

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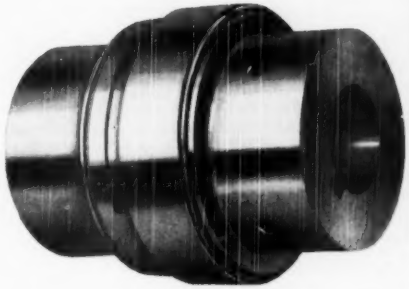

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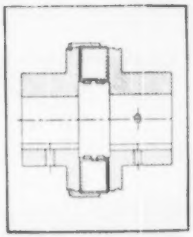

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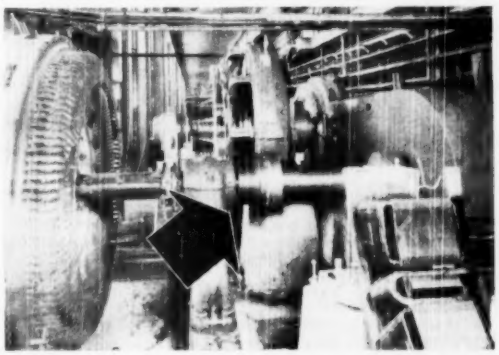

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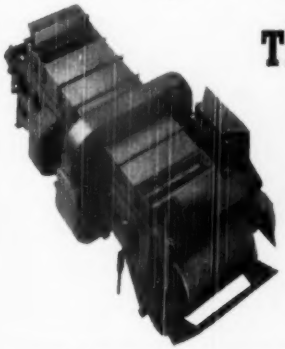

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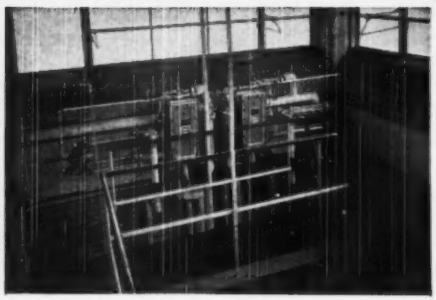

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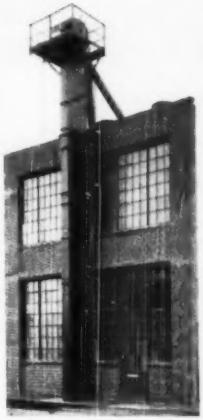

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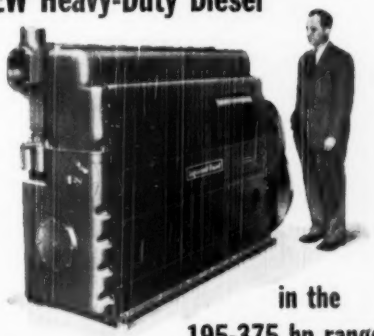

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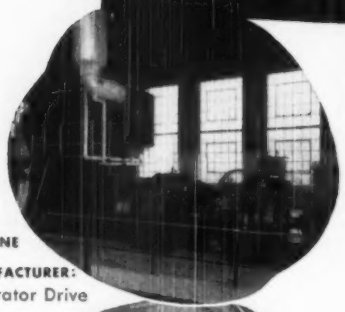

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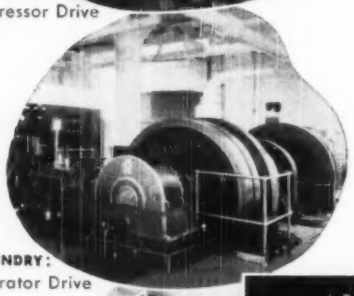

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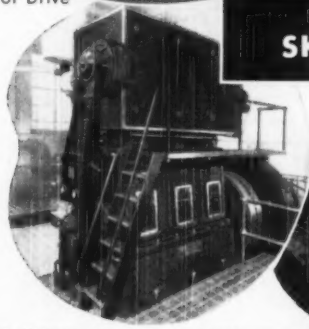
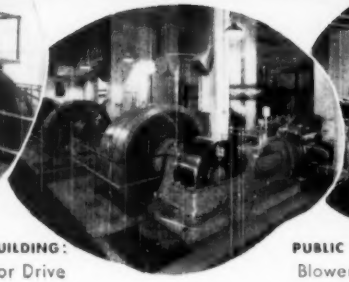
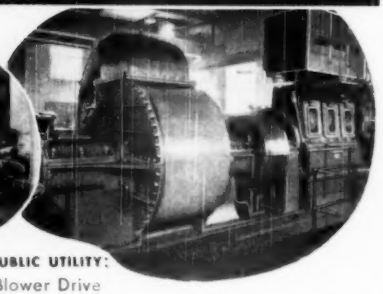


PUBLIC INSTITUTION: Generator Drive



OFFICE BUILDING: Generator Drive



PUBLIC UTILITY: Blower Drive

Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis
General Machinery Corp. Hamilton. Ohio
Godfrey-Keeler Co. 1 Hudson St. New York 13. N. Y.
Lima-Hamilton Corp. Hamilton. Ohio
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Nordberg Mfg Co. 3073 S Chase Ave. Milwaukee 7. Wis.
Skinner Engine Co. 337 W 12th St. Erie. Pa.
Troy Engine & Machine Co. 2500 Railroad Ave. Troy. Pa.

EVAPORATORS

Alco Products Div. American Locomotive Co. Dunkirk. N. Y.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove. Ill.
Buffalo Forge Co. 488 Broadway. Buffalo 5. N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4. N. J.
Foster Wheeler Corp. 165 Broadway. New York 6. N. Y.
Frick Co. W Main St. Waynesboro. Pa.
Goodyer Industries. 224 S Michigan Ave. Chicago 4. Ill.
Griscom-Russell Co. 285 Madison Ave. New York 17. N. Y.
Hellman Boiler Works. 132 Linden St. Allentown. Pa.
Henszey Co. 202½ Water St. Watertown. Wis.
Koppers Co. Inc. 200 Scott St. Baltimore. Md.
Lummus Co. 259 W 14th St. New York 17. N. Y.
McQuay Inc. 1600 Broadway St N E. Minneapolis 13. Minn.
Maxim Silencer Co. 85 Homestead Ave. Hartford 1. Conn.
Nooter Corp. 1400 S 2nd St. St Louis 4. Mo.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22. Pa.
Struthers Wells Corp. Warren. Pa.
Sturtevant Div. Westinghouse Elec Corp. Hyde Park. Boston 36. Mass.
Surface Combustion Corp. 2375 Dorr St. Toledo 1. Ohio
Titusville Iron Works Co. Div. Struthers Wells Corp. Titusville. Pa.
Trane Co. LaCrosse. Wis.
Young Radiator Co. 709 S Marquette St. Racine. Wisc.

EXCITERS

(See Generators. Electric)

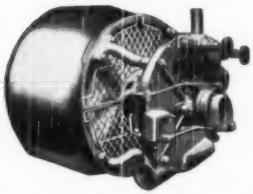
EXPANDERS, TUBE

Airetool Mfg Co. 300 S Center St. Springfield. Ohio
Alberger Heater Co. 280 Chicago St. Buffalo 4. N. Y.
Alco Products Div. American Locomotive Co. Dunkirk. N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Condenser Service & Engrg Co. 95 River St. Hoboken. N. J.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Key Co. 27th & McCaslund. E St Louis. Ill.
Murray. A B. Co Inc. 608 Green Lane. Elizabeth. N. J.
Wiedeke Gustav. Co. 1833 Richard St. Dayton 10. Ohio
Wilson-Dudgeon Div. Thomas C Wilson Inc. 21-11 44th Ave. Long Island City 1. N. Y.

FANS, EXHAUST

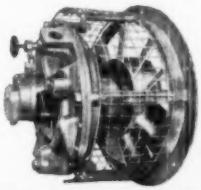
Allen. E H. Co. 22 Dorrance St. Boston 29. Mass.
American Blower Corp. Detroit 32. Mich.
American Wheelabrator & Equip Corp. 744 S Byrkit St. Mishawaka Ind.
Arex Co. 333 N Michigan Ave. Chicago 1. Ill.
Binks Mfg Co. 3114-40 Carrol Ave. Chicago 12. Ill.
Buffalo Forge Co. 488 Broadway. Buffalo 5. N. Y
Burt Mfg Co. 47 E South St. Akron 11. Ohio
Campbell Heating. E K Co. 1809 Manchester Ave. Kansas City. Mo.
Chelsea Fan & Blower Co. Inc. 1206 Grove St. Irvington 11. N. J.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16. Mich.

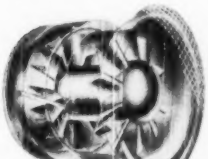
WING FORCED DRAFT BLOWERS



THE WING TYPE K IS THE GRAND-DADDY OF ALL TURBINE BLOWERS. It's been a standard since 1903. For forced draft by bricking into boiler wall settings at side, rear or front. Capacities up to 50,000 CFM and statics to 15 in. Mere turn of steam valve, manually or automatically, varies the speed and capacity. Oil-free exhaust steam permits economical utilization in feed water, process and heating systems.

THE WING TYPE R TURBINE DRIVEN BLOWER is easily installed on burner fronts or boiler settings. It provides precise-draft control, manually or automatically, eliminating duct work and large space requirements. Particularly adapted for plants where oil-free exhaust steam is utilized. Negligible operating cost, as most of heat from steam is recovered.





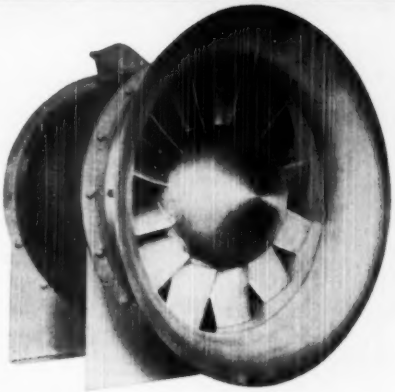
WING EMD MOTOR DRIVEN BLOWER. For oil or gas burners, stokers, pulverized fuel and hand-fired boilers. Vertical or horizontal mountings; on floor or on wind boxes or air heaters. For statics up to 10 in., volumes up to 50,000 CFM. Manual or automatic capacity variation. Falling horsepower characteristics with dampering. Total efficiencies up to 94.7%.

50 Vreeland Mills Road, Linden, N. J.

L. J. Wing Mfg. Co.

JOY INDUSTRIAL FANS

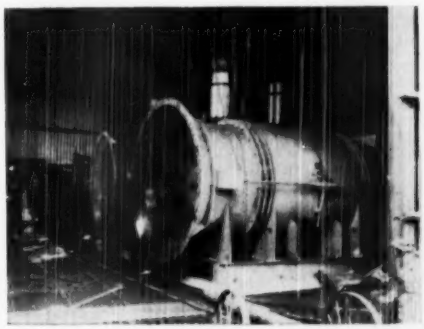
A CAPACITY FOR EVERY INDUSTRIAL REQUIREMENT



Series 1000 AXIVANE* Fans

Joy Series 1000 Fans constitute the world's most complete line of adjustable-blade, vaneaxial fans. In addition to this standard, Joy can provide fans of any size to special order. The 124 models in the Series 1000 line provide capacities ranging up to 100,000 C.F.M. at pressures up to 9.6" W.G. They are suitable for both high and low pressure duties.

Adjustable blades are standard equipment on all Series 1000 Fans. The factory blade setting can be quickly changed to provide either a change in volume or a wide pressure range for any constant volume. Adjustable blades permit on-the-job correction for unpredictable duct resistance or poorly installed duct work. Joy AXIVANE* Fans will save power where air demands vary since the blades can be turned to the most efficient setting for any particular duty.



Each of these especially-built Joy AXIVANE Fans passes 50,000 C.F.M. at 75" W.G. In this installation, the compact design resulted in a building one story shorter than would have been required for centrifugal fans of equal capacity.*

*Trademark Registered

JOY MANUFACTURING CO.
Dept. 5, Oliver Building, Pittsburgh 22, Pa.
CONSULT A JOY ENGINEER . . .
OR WRITE FOR BULLETINS

SOUTH BEND AIR PRODUCTS INC
INDIANA

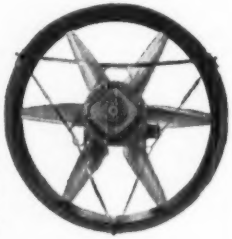
Aerospot and Dynaflow

FANS FOR EVERY INDUSTRY

Aerospot and Dynaflow Fans rate high in efficiency and safety features and offer advanced aerodynamic design and rugged construction. The models shown are in most demand for Industrial use. Any unit may be furnished with explosion-proof motor and fan blades. For complete specifications, and listings of other fans available, write for our new catalog today!

HEAVY DUTY AEROSPOT

For general or specific ventilation, man-cooling, or parts-cooling—to increase personnel efficiency and decrease lost time in cooling and drying hot parts. Portable. Direction of blast adjustable. Explosion-proof motor, metal conduit and starter can be supplied. Conforms to state safety regulations.

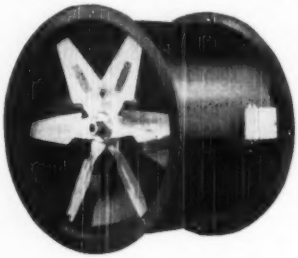


DYNAFLOW UNITS 2-4-6 BLADE TYPES

Six Blade model illustrated. For exhausting or blowing against high static pressures. For general ventilation or specific processes where fumes are present. Sizes: 16 to 36 in. dia. Capacities: 1240 to 26000 c.f.m. Two and four blade models for applications at lower static pressures.

EXTENSION ARM DYNAFLOW FOR "HOT" OR "EXPLOSIVE" GASES

For exhausting explosive gases or fumes . . . For circulating "hot" gases up to 350°F. where temperature is too high to permit use of standard or even special motors. Used in heat exchangers—"sweater" ovens, etc. Fans from 16 to 36 in. diameters.



DUCTYPE UNITS
Direct Drive or Belt Drive

Direct drive model shown; also supplied with belt drive for high temperatures or corrosive air and gas handling. Designed for bolting in any duct run at any point or at either end. Sizes 16 to 36 in. fans.

SOUTH BEND AIR PRODUCTS, Inc.
322 EAST COLFAX AVENUE • SOUTH BEND, INDIANA

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Diehl Mfg Co, 1142 Finderne Ave, Somerville, N. J.
Eagle-Picher Co, American Bldg, Cincinnati 1, Ohio
Garden City Fan Co, 332 S Michigan Ave, Chicago 4, Ill.
Graybar Electric Co Inc, 420 Lexington Ave, N Y C 17, N. Y.
Green Fuel Economizer Co, 627 Main St, Beacon, N. Y.
Hanson-Van Winkle-Munning Co, Church St, Matawan, N. J.
Hartzell Propeller Fan Co, Downing St, Piqua, Ohio
Heilman Boiler Works, 132 Linden St, Allentown, Pa.
International Engrg Inc, P O Box 973, Dayton 1, Ohio
Joy Mfg Co, Dept. 5, Oliver Bldg, Pittsburgh 22, Pa.
Kennedy Van Saun Mfg & Engrg Corp, 2 Park Ave, N. Y. 16, N. Y.
Kirk & Blum Mfg Co, 2874 Spring Grove Ave, Cincinnati 25, Ohio
Moore Co, Marceline, Mo.
Murray, D J, Mfg Co, Wausau, Wis.
Ripley Co, Factory St, Middletown, Conn.
Robbins & Myers Inc, 1345 Lagonda Ave, Springfield, Ohio
South Bend Air Products Inc, 322 E Colfax Ave, South Bend 22, Ind.
Sterling Blower Co, 791 Windsor St, Hartford, Conn.
Sturtevant, Div Westinghouse Elec Corp, Hyde Park, Boston, Mass.
Trane Co, LaCrosse, Wis.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wing, L J, Mfg Co, Linden, N. J.

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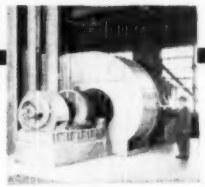
American Blower Corp, Detroit 32, Mich.
American Coal Burner Corp, 12-18 E Erie St, Chicago 11, Ill.
Buffalo Forge Co, 488 Broadway, Buffalo 5, N. Y.
Campbell Heating, E K Co, 1809 Manchester Ave, Kansas City, Mo.
Clarage Fan Co, North & Porter Sts, Kalamazoo 16, Mich.
DeBothezat Fans Div, American Machine & Metals, Inc, East Moline, Ill.
Fluor Corp Ltd, 2500 S Atlantic Blvd, Los Angeles 22, Calif.
Fly Ash Arrestor Corp, P O Box 1883, Birmingham 1, Ala.
Garden City Fan Co, 332 S Michigan Ave, Chicago 4, Ill.
General Blower Co, 8608 Ferriss Ave, Morton Grove, Ill.
Green Fuel Economizer Co Inc, 627 Main St, Beacon, N. Y.
Hartzell Propeller Fan Co, Downing St, Piqua, Ohio
Heilman Boiler Works, 132 Linden St, Allentown, Pa.
International Engrg Inc, P O Box 973, Dayton 1, Ohio
Joy Mfg Co, Dept 5, Oliver Bldg, Pittsburgh 22, Pa.
Kennedy Van Saun Mfg & Engrg Corp, 2 Park Ave, N. Y. 16, N. Y.
Koppers Co, Inc, 200 Scott St, Baltimore, Md.
McClave, R B Engrg Co, 149 Broad St Station Bldg, Phila 3, Pa.
Moore Co, Marceline, Mo.
Prat-Daniel Corp, 74 S Water St, E Port Chester, Conn.
Robbins & Myers Inc, 1345 Lagonda Ave, Springfield, Ohio
Sprout, Waldron & Co, Muncy, Pa.
Sturtevant, Div Westinghouse Elec Corp, Hyde Park, Boston, Mass.
Thermix Corp, Greenwich, Conn.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wing, L J, Mfg Co, Linden, N. J.

FANS, PROPELLER

American Blower Corp, Detroit 32, Mich.
Arex Co, 333 N Michigan Ave, Chicago 1, Ill.
Buffalo Forge Co, 488 Broadway, Buffalo 5, N. Y.
Burt Mfg Co, 47 E South St, Akron 11, Ohio
Campbell Heating, E K Co, 1809 Manchester Ave, Kansas City, Mo.
Chelsea Fan & Blower Co, Inc, 1206 Grove St, Irvington 11, N. J.
Clarage Fan Co, North & Porter Sts, Kalamazoo 16, Mich.

"Buffalo" DRAFT FANS
For Long, Dependable Service

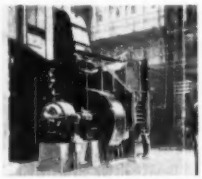


FORCED DRAFT

"Buffalo" Forced Draft Fans offer high efficiency over a wide range of capacities delivering as rated, even when fuel bed is unusually heavy. Non-overloading. Rugged construction throughout for continuous operation with minimum attention. WRITE FOR BULLETIN 3750.

INDUCED DRAFT

Modified radial double curved blades give high efficiency and extra heavy construction gives these fans extra long life on the job. Housings are designed for quick inspection of all parts. Non-overloading power characteristic and rising pressure characteristic assure stable performance under varying boiler conditions. WRITE FOR BULLETIN 3750.



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488 BROADWAY, BUFFALO, NEW YORK
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Branch Offices in all Principal Cities

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Fluor Corp Ltd. 2500 S Atlantic Blvd. Los Angeles 22. Calif.
General Blower Co. 8608 Ferriss Ave. Morton Grove. Ill.
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International Engrg Inc. P O Box 973. Dayton 1. Ohio
Jeffrey Mfg Co. 932-99 N Fourth St. Columbus 16. Ohio
Joy Mfg Co. Dept 5. Oliver Bldg. Pittsburgh 22. Pa.
Koppers Co. Inc. 200 Scott St. Baltimore. Md.
Moore Co. Marceline. Mo
Nelson. Herman. Corp. 1824 3rd Ave. Moline. Ill.
Pritchard. J F & Co. 908 Grand Ave. Kansas City 6. Mo.
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield. Ohio
South Bend Air Products. Inc. 322 E Colfax Ave. South Bend 22. Ind.
Trane Co. LaCrosse. Wis
Water Cooling Equip Corp. New Hampshire & Webster Rd. St Louis 23. Mo.
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Drew. E F & Co Inc. 15 E 26th St. New York 10. N. Y.
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Elgin Softener Corp. 130 N Grove Ave. Elgin. Ill.
Fuller Co. 120 Bridge St. Catasauqua. Pa.
Graver Water Conditioning Co 216 W 14th St New York 11. N Y.
Haering. D W & Co. 205 W Wacker Dr. Chicago 6. Ill
Hardinge Co Inc. 240 Arch St. York. Pa.
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Infilco Inc. 325 W 25th Place. Chicago 16. Ill.
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Dearborn Chemical Co. 310 S Michigan Ave. Chicago 4. Ill.
Drew. E F. & Co Inc. 15 E 26th St. New York 10. N. Y.
Elgin Softener Corp. 130 N Grove Ave. Elgin. Ill.
Elliott Co. Jeannette. Pa.
Feedwater. Inc. 140 Cedar St. New York 6. N. Y.
Graver Water Conditioning Co. 216 W 14th St. New York 11. N. Y.
Hagan Corp. Hagan Bldg. Pittsburgh 30. Pa.
La Motte Chemical Products Co. Towson. Baltimore 4. Md.
Madden. P E & Co. 352 W Walton St. Chicago 10. Ill.
National Aluminate Corp. 6246 W 66th Place. Chicago 38. Ill.
Permutit Co. 330 W 42nd St. New York 18. N. Y.
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Suhm Co. 4701 W Electric Ave. Milwaukee 14. Wis.
Taylor. W A & Co. 7300 York Road. Baltimore 4. Md.
Worthington Pump & Machy Corp. Harrison. N. J.

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American Air Filter Co Inc. Louisville 8. Ky.
American Solvent Recovery Corp. 8th & Cassady Aves. Columbus 3. Ohio
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Carborundum Co. Perth Amboy. N. J.
Cleco Div Reed Roller Bit Co. P O Box 2119. Houston 1. Texas
Coppus Engrg Corp. 344 Park Ave. Worcester 2. Mass.
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"Buffalo"

FANS
For Quiet, Economical
VENTILATION

LIMIT-LOAD FANS

Designed to move large volumes of air for straight ventilation and air conditioning work. Medium speed, double curved blade design with non-overloading characteristic means high delivery at low noise levels and efficient use of driving power. Wide range of sizes, all drives and arrangements. Ask for BULLETIN 3675.

AXIAL FLOW FANS

Light, compact, efficient fans for duct-mounted service in ventilation and air conditioning. Improved blade design and straightline delivery offer users extremely quiet, economical service. Non-overloading. Belted or direct motor drive, in wide range of sizes for work against ¼" to 1½" static. Full details in BULLETIN 3533-C.

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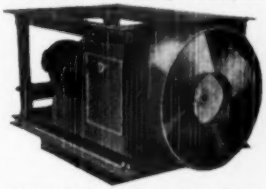
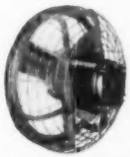
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Branch Offices in all Principal Cities

WING VENTILATING EQUIPMENT

WING STRAIGHT LINE DUCT FANS are designed to form a part of any straight run of duct. The motor is mounted on an adjustable base outside of the housing. V-belt drive is through an air tube carried across the housing and supporting fan shaft and bearings. Fan wheel is the new, non-overloading Wingfoil Fan. Bearings are grease-sealed, requiring minimum of attention.

THE WING ELBOW TYPE DUCT FAN is designed to form an elbow in the duct system, the elbow-shaped housing in a strong rectangular frame, permits installation with the inlet in any desired position. Motor and drive are outside the air stream, therefore remain cool, clean, and easily accessible. The new Wing-foil Fan has a remarkable "non-overloading" characteristic. Sizes 10" to 60"; capacities up to 60,000 CFM.





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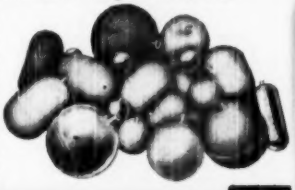

BULLETIN 348

W. H. NICHOLSON & CO.
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DRAFT GAGES

BAILEY METERS

BAILEY
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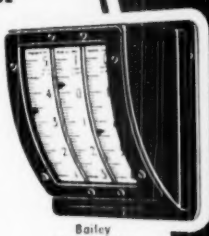
You will find the Bailey Multi-Pointer Gage a valuable asset in achieving safe, consistent and economical furnace operation. Its design, which places from two to twelve indicating units side by side, permits the establishment of a pointer pattern (overall picture of related factors shown graphically) easily recognized by operators. Any deviation from the established pattern is quickly noticed; appropriate adjustments can be made to re-establish the desired conditions.



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Mason-Neilan Regulator Co. 1190 Adams St. Boston 24, Mass.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Nathan Mfg Co. 416 E 106th St. New York 29, N. Y.
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15, Wis.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26, Ill.
Powell, Wm. Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Reliance Gauge Column Co. 5902 Carnegie Ave. Cleveland 3, Ohio
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Simplex Valve & Meter Co. 6780 Upland St. Phila 42, Pa.
Stewart-Warner Corp. 1826 Diversey Pkway. Chicago 14, Ill.
Swift Lubricator Co Inc. 100 Home St. Elmira, N. Y.
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Trico Fuse Mfg Co. 2948 N 5th St. Milwaukee 12, Wis.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.

GAGES, PRESSURE

Air Reduction Sales Co. 60 E 42nd St. New York 17, N. Y.
Bacharach Industrial Instrument Co. 7000 Bennett St. Pittsburgh.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Clapp Instrument Co Inc. Tracy Circle, Webster, Mass.
Cleveland Fuel Equip Co. 1901 Train Ave. Cleveland 13, Ohio
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Crosby Steam Gage & Valve Co. Kendrick St. Wrentham, Mass.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2, Mo.
Dockson Corp. 3839 Wabash Ave. Detroit 8, Mich.
Dunham, C A Co. 400 W Madison St. Chicago 6, Ill.
Dwyer, F W, Mfg Co. 317 S Western Ave. Chicago, Ill.
Edison, Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Esterline-Angus Co, Inc. 1201 Main St. Indianapolis 6, Ind.
Fisher Governor Co. Marshalltown, Iowa
Foxboro Co. 38 Neponset Ave. Foxboro, Mass.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Helicoid Div. American Chain & Cable Co Inc. Bridgeport 7, Conn.
Hotstream Heater Co. 2363 E 69th St. Cleveland 4, Ohio
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7, Ill.
Lonergan, J E Co. 209 Race St. Phila 6, Pa.
Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2, Conn.
Marsh, Jas P. Corp. Skokie, Ill.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk, Conn.
Panellit Inc. Panalarm Products Div. 7216 N Clark St. Chicago 26, Ill.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7, Wis.
Precision Thermometer & Instr Co. 1401 Brandywine St. Phila. 30, Pa.
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Stewart-Warner Corp. 1826 Diversey Pkway. Chicago 14, Ill.
Sticht, Herman H Co. 27 Park Pl. New York 7, N. Y.
Swift Lubricator Co Inc. 100 Home St. Elmira, N. Y.
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Uehling Instruments Co. 473 Getty Ave. Paterson 3, N. J.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Watson Stillman Co. 108 Aldene Rd. Roselle, N. J.
Weksler Thermometer Corp. 52 W Houston St. New York 12, N. Y.
Williams & Hussey Machine Co. Wilton, N. H.

GAGES, VACUUM

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Bristol Co. Waterbury 91, Conn.
Clapp Instrument Co Inc. Tracy Circle, Webster, Mass.
Condenser Service & Engrg Co. Inc. 95 River St, Hoboken, N. J.
Crosby Steam Gage & Valve Co. Kendrick St, Wrentham, Mass.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2, Mo.
Dunham, C A Co. 400 W Madison St. Chicago 6, Ill.
Dwyer, F W, Mfg Co. 317 S Western Ave. Chicago, Ill.
Esterline-Angus Co Inc. 1201 Main St. Indianapolis 6, Ind.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Helicoid Div. American Chain & Cable Co. Bridgeport 7, Conn.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Hoffman Specialty Co. 1001 York St. Indianapolis 7, Ind.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7, Ill.
Lonergan, J E Co. 209 Race St. Phila 6, Pa.
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Marsh, Jas P. Corp. Skokie, Ill.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk, Conn.
Precision Thermometer & Instr Co. 1401 Brandywine St. Phila. 30, Pa.
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago, Ill.
Sticht, Herman H Co. 27 Park Pl. New York 7, N. Y.
Swift Lubricator Co Inc. 100 Home St. Elmira, N. Y.
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Weksler Thermometer Corp. 52 W Houston St. New York 12, N. Y.

GALVANOMETERS

Associated Research Inc. 3758 W Belmont Ave Chicago 3, Ill.
Biddle, James G. Co. 1316 Arch St. Philadelphia 7, Pa.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal, New York 17, N. Y.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17, N. Y.
Leeds & Northrup Co, 4970 Stenton Ave. Phila 44, Pa.
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5, N. J.

GAS, ACETYLENE

Air Reduction Sales Co. 60 E 42nd St. New York 17, N. Y.
Linde Air Products Co. 30 E 42 St. New York 17, N. Y.

GAS, CARBON DIOXIDE

Air Reduction Sales Co. 60 E 42nd St. New York 17, N. Y.
Cardox Corp. 307 N Michigan Ave. Chicago 1, Ill.
Monsanto Chemical Co. 1700 S Second St. St Louis 4, Mo.

GAS, OXYGEN

Air Reduction Sales Co. 60 E 42nd St. New York 17, N. Y.
Joy Mfg Co. Dept 5, Oliver Bldg. Pittsburgh 22, Pa.
Linde Air Products Co. 30 E 42 St. New York 17, N. Y.

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Akron Metallic Gasket Co. 150-164 N Union St. Akron, Ohio
Anchor Packing Co. 401 N Broad St. Phila 8, Pa.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila, Pa.
Chesterton, A W Co. 6 Ashland St. Everett 49, Mass.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19, Ill.
Collins Packing Co. Inc. 401 N Broad St. Phila 8, Pa.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13, Ill.
Darcoid Co. Inc. 145 Sixth Ave. New York 13, N. Y.
Durabla Mfg Co. 114 Liberty St. New York 6, N. Y.
Ehret Magnesia Mfg Co. Valley Forge, Pa.
Eureka Packing Co. 294-296 46th St. Brooklyn 20, N. Y.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7, Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington, Conn.
Flexitallic Gasket Co. 8th & Bailey Sts. Camden 2, N. J.
Garlock Packing Co. 402 E Main St. Palmyra, N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4, N. J.
Greene, Tweed & Co. 322 Elm Ave. North Wales, Pa.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3, Ohio
Johns-Manville, 22 East 40th St. New York 16, N. Y.
Keasbey & Mattison Co. Butler Ave. Ambler, Pa.
Klingerit Inc. 16 Hudson St. New York 13, N. Y.
Linear Inc. State Rd & Levick St. Tacony, Phila 35, Pa.
Marlo Co. Inc. 434 Broadway, New York 13, N. Y.
Murray, A B, Co Inc. 608 Green Lane, Elizabeth, N. J.
New Jersey Asbestos Co. 1 Water St. New York, N. Y.
New York Belting & Packing Co. 1 Market St. Passaic, N. J.
Pilot Packing Co Inc. P O Box 748, Sea Cliff, N. Y.
Quaker Rubber Corp Comly St & State Rd. Phila 24 Pa
Raybestos-Manhattan, Inc. Packing Div Manheim, Pa
Robinson, John R. 350 W 31st St. New York 1, N. Y.
Sta-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge, N. J.
Sexauer, J A Mfg Co Inc. 2503 3rd Ave. New York 51, N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10, Texas
Union Asbestos & Rubber Co. 1819 S 54th Ave. Cicero 50, Ill.
U S Gasket Co. 602 N 10th St. Camden, N. J.
United States Rubber Co. 1230 6th Ave. New York 20, N. Y.

GASKETS, COPPER

Akron Metallic Gasket Co. 150-164 N Union St. Akron, Ohio
Anchor Packing Co. 401 N Broad St. Phila 8, Pa.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20, Conn.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19, Ill.
Darcoid Co Inc. 145 Sixth Ave. New York 13, N. Y.
Division Lead Co. 836 W Kinzie St. Chicago 22, Ill.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7, Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington, Conn.

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Johns-Manville. 22 E 40th St. New York 16. N. Y.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Robinson, John R. 350 W 31st St. New York 1. N. Y.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
U S Gasket Co. 602 N 10th St. Camden. N. J.

GASKETS, CORK

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Darcoid Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston. N. J.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene, Tweed & Co. 322 Elm Ave. North Wales. Pa.
Mundet Cork Corp. 7101 Tonnelle Ave. North Bergen. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
U S Rubber Co. 1230 6th Ave. New York 20. N. Y.

GASKETS, FELT, FIBER

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila 37. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Collins Packing Co. Inc. 401 N Broad St. Phila 8. Pa.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Darcoid Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Felters Co. 210 South St. Boston 11. Mass.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Flexrock Co. 3677 Filbert St. Phila 4. Pa.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene, Tweed & Co. 322 Elm Ave. North Wales. Pa.
Johns-Manville. 22 E 40th St. New York 16. N. Y.
Linear Inc. State Rd & Levick St. Tacony. Phila 35. Pa.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Raybestos-Manhattan Inc. Packing Div. Manheim. Pa.
Sexauer. J A Mfg Co. Inc. 2503 3rd Ave. New York 51. N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

GASKETS, LEATHER

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Alexander Bros. 406 N 3rd St. Phila 7. Pa.
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Baldwin Belting Inc. 74-76 Murray St. New York 7. N. Y.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila 37. Pa.
Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
Collins Packing Co. Inc. 401 N Broad St. Phila 8. Pa.
Darcoid Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Fisher Leather Belting Co Inc. 325 N 3rd St. Phila 6. Pa.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Graton & Knight Co. 356 Franklin St. Worcester 4. Mass.
Greene, Tweed & Co. 322 Elm Ave. North Wales. Pa.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Schieren. Chas A Co. 30 Ferry St. New York 7. N. Y.
Sexauer. J A Mfg Co. Inc. 2503 3rd Ave. New York 51. N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
Whiting Leather & Belting Co. 9 Murray St. New York 7. N. Y.
Williams. I B. & Sons. 51 Washington St. Dover. N. H.

GASKETS, METALLIC

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Collins Packing Co. Inc. 401 N Broad St. Phila 8. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Division Lead Co. 836 W Kinzie St. Chicago 22. Ill.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Flexitallic Gasket Co. 8th & Bailey Sts. Camden 2. N. J.
Flexrock Co. 3677 Filbert St. Phila 4. Pa.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene, Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Johns-Manville. 22 E 40th St. New York 16. N. Y.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Robinson. John R. 350 W 31st St. New York 1. N. Y.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sexauer. J A Mfg Co. Inc. 2503 3rd Ave. New York 51. N. Y.
Smooth-On Mfg Co. 572 Communipaw Ave. Jersey City 4. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
U S Gasket Co. 602 N 10th St. Camden. N. J.

GASKETS, RUBBER

Akron Metallic Gasket Co. 150-164 N Union St. Akron. Ohio
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila 37. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
Chicago-Wilcox Mfg Co. 7701 Avalon Ave. Chicago 19. Ill.
Clow. James B & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Collins Packing Co. Inc. 401 N Broad St. Phila 8. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Darcoid Co Inc. 145 Sixth Ave. New York 13. N. Y.
Ehret Magnesia Mfg Co. Valley Forge. Pa.
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Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Goodyear Tire & Rubber Co. 1144 E Market St. Akron 16
Goshen Rubber & Mfg Co. 9th & Iowa Sts. Goshen. Ind.
Greene, Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Johns-Manville. 22 E 40th St. New York 16. N. Y.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Linear Inc. State Rd & Levick St. Tacony. Phila 35. Pa.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
Pilot Packing Co Inc. P O Box 748. Sea Cliff. N. Y.
Quaker Rubber Corp. Comly St & State Rd. Phila 24. Pa.
Raybestos-Manhattan Inc. 61 Willett St. Passaic. N. J.
Republic Rubber Div. Youngstown 1. Ohio
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sexauer. J A Mfg Co. Inc. 2503 3rd Ave. New York 51. N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
Thermoid Co. Trenton. N. J.
U S Gasket Co. 602 N 10th St. Camden. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

GATES, BIN

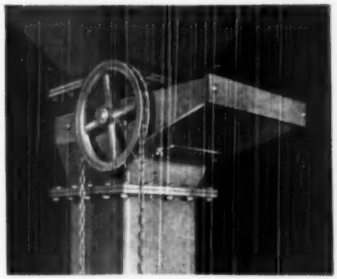
Allen-Sherman-Hoff Co. 227 S 15th St. Phila 2. Pa.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Beaumont Birch Co. 1505 Race St. Phila 2. Pa.
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Chain Belt Co. 1674 W Bruce St. Milwaukee 4. Wis.
Continental Gin Co. 4500 5th Ave S. Birmingham 2. Ala.
Corrigan Co Inc. 41-47 Norwood St. Boston 22. Mass.
Fairfield Engrg Co. 320 Chicago Ave. Marion. Ohio
Fuller Co. 120 Bridge St. Catasauqua. Pa.
Gifford-Wood Co. Hudson. N. Y.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
Hydro-Ash Corp. 1408-1410 W Harrison St. Chicago 7. Ill
Jeffrey Mfg Co. 932-99 N Fourth St. Columbus 16. Ohio
Jenkins Conveyors Co. 614 Central Ave. East Orange. N. J.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. New York 16. N. Y.
Link-Belt Co. 300 W Pershing Rd. Chicago 9. Ill.
McNally Pittsburg Mfg Corp. Pittsburg. Kans.
National Conveyors Co Inc. 50 Church St. N. Y. 7. N. Y.
Nazareth Steel Fabricators Inc. Nazareth. Pa.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Stock Equip Co. 715 P Hanna Bldg. Cleveland 15. Ohio
Warren Brothers Roads Co. 38 Memorial Dr. Cambridge 42. Mass.

GATES, HEAD

Armco Drainage & Metal Products Inc. 703 Curtis St. Middletown. Ohio
Bergen Point Iron Wks. Foot of W 5th St. Bayonne. N. J.
Bethlehem Steel Co. Bethlehem. Pa.
Hunt. Rodney. Machine Co. 13 River St. Orange. Mass.
Lakeside Bridge & Steel Co. 5300 N 33rd St. Milwaukee 9. Wis.
Nazareth Steel Fabricators Inc. Nazareth. Pa.
Murray. D J. Mfg Co. Wausau. Wis.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.

GATES, BIN

S-E-Co. Coal Valve



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Clow. James B. & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Hendy. Joshua. Iron Wks. Sunnyvale. Calif.
Koppers Co Inc. Koppers Bldg. Pittsburgh 19. Pa.
Lakeside Bridge & Steel Co. 5300 N 33rd St. Milwaukee 9. Wis.
Ludlow Valve Mfg Co Inc. Foot of Adams St. Troy. N. Y.
Murray. D J. Mfg Co. Wausau. Wis.
Nazareth Steel Fabricators Inc. Nazareth. Pa.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.

GEARS, POWER TRANSMISSION

American Manganese Steel Div. Chicago Heights. Ill.
Atlantic Gear Wks. 200 Lafayette St. New York 12. N. Y.
Bartlett. C O & Snow Co. 6200 Harvard Ave. Cleveland 5. Ohio
Bond. Charles Co. 617-623 Arch St. Phila 6. Pa.
Boston Gear Wks. 14 Hayward St. Quincy 71. Mass.
Brad Foote Gear Wks. 1309 S Cicero Ave. Cicero 50. Ill.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Cleveland Worm & Gear Co. 3262 E 80 St. Cleveland 4. Ohio
Condenser Service & Engrg Co Inc. 95 River St. Hoboken. N. J.
Continental Gin Co. 4500 S 5th Ave. Birmingham 2. Ala.
DeLaval Steam Turbine Co. Trenton 2. N. J.
Falk Corp. 3001 W Canal St. Milwaukee 8. Wis.
Farrel-Birmingham Co Inc. 344 Vulcan St. Buffalo 7. N. Y.
Farval Corp. 3262 E 80th St. Cleveland 4. Ohio
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Foote Bros Gear & Machine Corp. 4545 S Western Blvd. Chicago
Industrial Gear Mfg Co. 4543 Van Buren St. Chicago 24. Ill.
James. D O Mfg Co. 1140 W Monroe St. Chicago 7. Ill.
Jones. W A Foundry & Machine Co. 4401 Roosevelt Rd. Chicago. Ill.
Link-Belt Co. 2045 W Hunting Park Ave. Phila 40. Pa.
McNally Pittsburgh Mfg Corp. Pittsburg. Kans.
Medart Co. 100 Potomac St. St Louis 18. Mo.
Michigan Tool Co. 7171 E McNichols Rd. Detroit 12. Mich.
Palmer-Bee Co. 1710 Poland Ave. Detroit 12. Mich.
Philadelphia Gear Wks Inc. G St & Erie Ave. Phila 34. Pa.
Ramsey Chain Co Inc. Troy Rd. Albany 1. N. Y.
Sier Bath Gear & Pump Co Inc. 9252 Hudson Blvd. North Bergen. N. J.
Smith. W H Corp. 128 Eaton St. Springville. Erie County. N. Y.
Snow-Nabstedt Gear Corp. 251 Welton St. Hamden 7. Conn.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Terry Steam Turbine Co. P O Box 1200. Hartford 1. Conn.
Universal Gear Corp. 1452 E 19th St. Indianapolis. 7. Ind.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Worthington Pump & Machy Corp. Harrison. N. J.

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Buda Co. 154th & Commercial. Harvey. Ill.
Caterpillar Tractor Co. 600 W Washington St. Peoria 8. Ill.
Chicago Pneumatic Tool Co. 6 E 44th St. New York 17. N. Y.
Cleveland Diesel Engine Div. General Motors Corp. 2160 W 106th St. Cleveland 11. Ohio
Consolidated Diesel Elec Corp. 230 E 8th St. Mt. Vernon. N. Y.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Elliott Co. Jeannette. Pa.
Enterprise Engine & Foundry Co. 18th & Florida Sts. San Francisco 10. Calif.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
Hobart Brothers Co. Hobart Square. Troy 1. Ohio
Ingersoll-Rand Co. 11 Broadway. New York 4. N. Y.
Kato Engrg Co. 122 Maxfield St. Mankato. Minn.
Murphy Diesel Co. 5317 W Burnham St. Milwaukee 14. Wis.
Nordberg Mfg Co. 3073 S Chase Ave. Milwaukee 7. Wis.
Onan. D W & Sons. 43 Royalston Ave. Minneapolis 5. Minn.
Ready Power Co. 11231 Freud Ave. Detroit. Mich.
Sheppard. R H. Co Inc. 101 Philadelphia St. Hanover. Pa.
Sinex Projects Inc. 745 Fifth Ave. New York 22. N. Y.
Sterling Engine Co. 1270 Niagara St. Buffalo 13. N. Y.
Union Diesel Engine Co. 2200 E 7th St. Oakland 6. Calif.
Venn-Severin Machine Co. 1317 W North Ave. Chicago. Ill.
Westinghouse Electric Corp. Braddock Ave. East Pittsburgh. Pa.
Witte Engine Wks Div. 1600 Oakland Ave. Kansas City 3. Mo.
Worthington Pump & Machy Corp. Harrison. N. J.

GENERATORS, ELECTRIC, AC

Air Reduction Sales Co. 60 E 42nd St. New York 17. N. Y.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Bogue Electric Co. 52 Iowa Ave. Paterson 3. N. J.
Bolinders Co Inc. 33 Rector St. New York 6. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Elec Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14. Ohio
Consolidated Diesel Elec Corp. 230 E 8th St. Mt. Vernon. N. Y.
Delco Products Div. General Motors 329 E First St. Dayton 1. Ohio
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17. N. Y.
Hobart Brothers Co. Hobart Square. Troy 1. Ohio
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Kato Engrg Co. 122 Maxfield St. Mankato. Minn.
Onan. D W & Sons. 43 Royalston Ave. Minneapolis 5. Minn.
Reliance Elec & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Star-Kimble Electric Co. 200 Bloomfield Ave. Bloomfield. N. J.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

GENERATORS, ELECTRIC, DC

Air Reduction Sales Co. 60 E 42nd St. New York 17. N. Y.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Bolinders Co Inc. 33 Rector St. New York 6. N. Y.
Bogue Electric Co. 52 Iowa Ave. Paterson 3. N. J.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Elec Co. 12th & Cranberry Sts. Erie. Pa.
Century Electric Co. 1806 Pine St. St Louis 3. Mo.
Columbia Electric Mfg Co. 4519 Hamilton Ave. Cleveland 14. Ohio
Consolidated Diesel Elec Corp. 230 E 8th St. Mt Vernon. N. Y.
Delco Products Div. General Motors Corp. 329 E First St. Dayton 1. Ohio
Diehl Mfg Co. 1142 Finderne Ave. Somerville. N. J.
Eclipse-Pioneer Div Bendix Aviation Corp. Teterboro. N. J.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Electro-Dynamic Co. Bayonne. N. J.
Elliott Co. Jeannette. Pa.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17. N. Y.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
Hobart Brothers Co. Hobart Square. Troy 1. Ohio
Ideal Electric & Mfg Co. E First St. Mansfield. Ohio
Kato Engrg Co. 122 Maxfield St. Mankato. Minn.
Onan. D W & Sons. 43 Royalston Ave. Minneapolis 5. Minn.
Reliance Elec & Engrg Co. 1068 Ivanhoe Rd. Cleveland 10. Ohio
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield. Ohio
Star-Kimble Electric Co. 200 Bloomfield Ave. Bloomfield. N. J.
Troy Engine & Machine Co. 2500 Railroad Ave. Troy. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

GENERATORS, ENGINE

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3. N. J.
Bogue Electric Co. 52 Iowa Ave. Paterson 3. N. J.
Bolinders Co Inc. 33 Rector St. New York 6. N. Y.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
Burke Electric Co. 12th & Cranberry Sts. Erie. Pa.
Consolidated Diesel Elec Corp. 230 E 8th St. Mt Vernon. N. Y.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Electric Products Co. 1720 Clarkstone Rd. Cleveland 12. Ohio
Elliott Co. Jeannette. Pa.
Ideal Elec & Mfg Co. E First St. Mansfield. Ohio
Kato Engrg Co. 122 Maxfield St. Mankato. Minn.
LeRoi Co. 1706 S 68th St. Milwaukee 14. Wis.
Onan. D W & Sons. 43 Royalston Ave. Minneapolis 5. Minn.
Ready Power Co. 11231 Freud Ave. Detroit. Mich.
Sheppard. R H. Co Inc. 101 Philadelphia St. Hanover. Pa.
Skinner Engine Co. 337 W 12th St. Erie. Pa.
Star-Kimble Electric Co. 200 Bloomfield Ave. Bloomfield. N. J.
Sterling Engine Co. 1270 Niagara St. Buffalo 13. N. Y.
Troy Engine & Machine Co. 2500 Railroad Ave. Troy. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Worthington Pump & Machy Corp. Harrison. N. J.

GENERATORS, STEAM

(See Boilers)

GENERATORS, TURBINE

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Brown Boveri Corp. 19 Rector St. New York 6. N. Y.
DeLaval Steam Turbine Co. Trenton 2. N. J.
Electric Machy Mfg Co. 1331 NE Tyler St. Minneapolis 13. Minn.
Elliott Co. Jeannette. Pa.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Murray Iron Wks Co. 1106 Washington St. Burlington. Iowa
Pyle-National Co. 1334 N Kostner Ave. Chicago 51. Ill.
Terry Steam Turbine Co. P O Box 1200. Hartford 1. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Whiton Machine Co. 190 Howard St. New London. Conn.
Worthington Pump & Machy Corp. Harrison. N. J.

GLASSES, GAGE

Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Corning Glass Works. Corning. N. Y.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston. N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Jerguson Gage & Valve Co. 87 Fellsway. Somerville. Mass.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Reliance Gauge Column Co. 5902 Carnegie Ave. Cleveland 3. Ohio
Robinson. John R. 350 W 31st St. New York 1. N. Y.
Swift Lubricator Co Inc. 100 Home St. Elmira. N. Y.
U. S. Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Wright-Austin Co. 3245 Wight St. Detroit 26. Mich.

GOVERNORS, AIR-COMPRESSOR

Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24. Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.

GOVERNORS, ENGINE INTERNAL COMBUSTION

Henry & Wright. Hartford 1. Conn.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Massey Machine Co. Watertown. N. Y.
Pierce Governor Co. 1611 Ohio Ave. Anderson 7. Wis.
Synchro-Start Products. Inc. 1046 Fullerton Ave. Chicago 14
Woodward Governor Co. 5001 N 2nd St. Rockford. Ill.

GOVERNORS, ENGINE, STEAM

Askania Regulator Co. 1603 S Michigan Ave. Chicago 11. Ill.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Henry & Wright. Hartford 1. Conn.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24. Mass.
Massey Machine Co. Watertown. N. Y.
Troy Engine & Machine Co. 2500 Railroad Ave. Troy. Pa.
Waters Governor Co. 89 Broad St. Boston 10. Mass.
Woodward Governor Co. 5001 N 2nd St. Rockford. Ill.

GOVERNORS, PUMP

Atlas Valve Co. 280-84 South St. Newark 5. N. J.
Cash. A W. Co. Decatur 7. Ill.
Climax Controls Div. Black. Sivalls & Bryson Inc. Box 1529. Tulsa 1. Okla.
Coffin. J S. Jr. Co. 326 S Dean St. Englewood. N. J.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Fisher Governor Co. Marshalltown. Iowa
Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
Kaye & MacDonald Inc. 11-15 Central Ave. West Orange. N. J.
Keckley. O. C. Co. 400 W Madison St. Chicago 6. Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio

Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
McAlear Mfg Co. 1901 S Weston Ave. Chicago 8. Ill.
McDonnell & Miller Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24. Mass.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10. Wis.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15
Northern Equipment Co. 1945 Grove Drive. Erie. Pa.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Squires. C E Co. 18502 Syracuse Ave. Cleveland 10. Ohio
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Swartwout Co. 18511 Euclid Ave. Cleveland 12. Ohio
Waters Governor Co. 89 Broad St. Boston 10. Mass.
Williams Gauge Co. 2055 Pennsylvania Ave. Pittsburgh 12. Pa.

GOVERNORS, STEAM-TURBINE

Askania Regulator Co. 1603 S Michigan Ave. Chicago 11. Ill.
Atlas Valve Co. 280-84 South St. Newark 5. N. J.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Henry & Wright. Hartford 1. Conn.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Leahy Mfg Co. 1804 E 8th St. Los Angeles 21. Calif.
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
Massey Machine Co. Watertown. N. Y.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Terry Steam Turbine Co. P O Box 1200. Hartford 1. Conn.
Waters Governor Co. 89 Broad St. Boston 10. Mass.
Woodward Governor Co. 5001 N 2nd St. Rockford. Ill.

GOVERNORS, WATER-WHEEL

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
Lombard Governor Corp. Ashland. Mass.
Smith. S Morgan. Co. 500 Lincoln St. York. Pa.
Woodward Governor Co. 5001 N 2nd St. Rockford. Ill.

GRAPHITE, LUBRICATING

Acheson Colloids Co. Port Huron. Mich.
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Chard & Howe. 170 Broadway. N. Y. 7. N. Y.
Dixon. Joseph Crucible Co. 167 Wayne St. Jersey City 3. N. J.
Ilsey. Doubleday & Co. 170 Broadway. New York 7. N. Y.
Kano Laboratories. 5785 Milwaukee Ave. Chicago 1. Ill.
National Carbon Co. Inc. 30 E 42nd St. New York 17. N. Y.
Swan-Finch Oil Corp. 30 Rockefeller Plaza. New York 20. N. Y.

GRATES, ROCKING, SHAKING

American Coal Burner Corp. 12-18 E Erie St. Chicago 11. Ill.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave. S E. Minneapolis 14
Canton Stoker Corp. 741 Andrews Pl SW. Canton 1. Ohio
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Erie City Iron Wks. 1422 East Ave. Erie. Pa.
Godfrey-Keeler Co. 1 Hudson St. New York 13. N. Y.
Keystone Grate & Blower Works. Lincoln Highway E. Chambersburg. Pa.
Laclede Stoker Co. 4438 Hunt Ave. St Louis 10. Mo.
McClave. R B Engrg Co. 149 Broad St Station Bldg. Phila 3. Pa.
Marion Machine. Foundry & Supply Co. Marion. Ind.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Murray. D J. Mfg Co. Wausau. Wis.
Page Boiler Co. 815 Webster Ave. Chicago 14. Ill.
Perfection Grate & Stoker Co. 4 Fisk Ave. Springfield 1. Mass.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Titusville Iron Works Co. Titusville. Pa.
Wickes Boiler Co. 512 N Water St. Saginaw. Mich.

GRATES, STATIONARY

American Coal Burner Corp. 12-18 E Erie St. Chicago 11. Ill.
Bros. Wm. Boiler & Mfg Co. 1057 10th Ave. S E. Minneapolis 14
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Keystone Grate & Blower Works. Lincoln Highway E. Chambersburg. Pa.
Klemp. Wm F Co. 6601 S Melvina Ave. Chicago 38. Ill.
Laclede Stoker Co. 4438 Hunt Ave. St Louis 10. Mo.
McClave. R B Engrg Co. 149 Broad St Station Bldg. Phila. 3. Pa.
Marion Machine. Foundry & Supply Co. Marion. Ind.
Murray Iron Works Co. 1106 Washington St. Burlington. Iowa
Murray. D J. Mfg Co. Wausau. Wis.
Page Boiler Co. 815 Webster Ave. Chicago 14. Ill.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield. Ill.
Steel Products Corp. 52 Vanderbilt Ave. New York 17. N. Y.
Titusville Iron Works Co. Titusville. Pa.
Wickes Boiler Co. 512 N Water St. Saginaw. Mich.

GRATES, TRAVELING

(See Stokers. Traveling Grate)

GRATING, FLOOR, STEEL

American Abrasive Metals Co. 460 Coit St. Irvington. N. J.
American Flexible Coupling Co. 1801 Pittsburgh Ave. Erie. Pa.
Bates. Walter Co. 500 Mills Rd. Joliet. Ill.
Borden Metal Products Co. Green Lane. Box 72. Elizabeth. N. J.
Hendrick Mfg Co. P O Box 497. Carbondale. Pa.
Kerlow Steel Flooring Co. 222 Culver Ave. Jersey City 5. N. J.
Klemp. Wm F. Co. 6601 S Melvina Ave. Chicago 38. Ill.
Murray. A B Co. Inc. 608 Green Lane. Elizabeth. N. J.
Petroleum Iron Works Div. P O Box 3031. Beaumont. Texas
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 22. Pa.
Smith. A O. Corp. 3533 N 27th St. Milwaukee 1. Wis.
Tri-Lok Co. 5515 Butler St. Pittsburgh 1. Pa.

GREASE, GRAPHITE

Adam Cook's Sons Inc. 5 N Stiles St. Linden. N. J.
Alemite Div. Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14. Ill.
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Borne Scrymser Co. 632 S Front St. Elizabeth. N. J.
Chard & Howe. 170 Broadway. New York 7. N. Y.
Cities Service Oil Co. 70 Pine St. New York 5. N. Y.
Dixon. Joseph Crucible Co. 167 Wayne St. Jersey City 3. N. J.
Esso Standard Oil Co. 15 W 51st St. New York 19. N. Y.
Freedom-Valvoline Oil Co. Freedom. Pa.
Gulf Oil Corp. Gulf Refining Co. 3800 Gulf Bldg. Pittsburgh 30. Pa.
Ilsley Doubleday & Co. 170 Broadway New York 7. N. Y.
Kano Laboratories. 5785 Milwaukee Ave. Chicago 1. Ill.
Keystone Lubricating Co. 21st & Clearfield Sts. Phila 32. Pa.
Pennsylvania Refining Co. 2686 Lisbon Rd. Cleveland 4. Ohio
Shell Oil Co Inc. 50 W 50th St. New York 20. N. Y.
Sinclair Refining Co. 630 Fifth Ave. New York 20. N. Y.
Sonneborn. L Sons Inc. New York 10. N. Y.
Standard Oil Co. Indiana. 910 S Michigan Ave. Chicago 80. Ill.
Swan-Finch Oil Corp. 30 Rockefeller Plaza. New York 20. N. Y.
Tide Water Associated Oil Co. 17 Battery Place. N Y C 4. N. Y.
Xzit Chemical Co. 158-14th St. Hoboken. N. J.

GREASE, LUBRICATING

Adam Cook's Sons Inc. 5 N Stiles St. Linden. N. J.
Borne Scrymser Co. 632 S Front St. Elizabeth. N. J.
Chard & Howe. 170 Broadway. New York 7. N. Y.
Cities Service Oil Co. 70 Pine St. New York 5. N. Y.
Dixon. Joseph Crucible Co. 167 Wayne St. Jersey City 3. N. J.
Dow Corning Corp. Midland. Mich.
Esso Standard Oil Co. 15 W 51st St. NYC 19. N. Y.
Fiske Bros Refining Co. Lubriplate Div. 129 Lockwood St. Newark 5. N. J.
Freedom-Valvoline Oil Co. Freedom. Pa.
Frictioneeze Corp. P O Box 8304. Fort Worth. Texas
Gulf Oil Corp. Gulf Refining Co. 3800 Gulf Bldg. Pittsburgh 30
Houghton. E F & Co. 303 W Lehigh Ave. Phila 33. Pa.
Ilsley. Doubleday & Co. 170 Broadway. New York 7. N. Y.
Keystone Lubricating Co. 21st & Clearfield Sts. Phila 32. Pa.
MacMillan Petroleum Corp. 530 W 6th St. Los Angeles. Calif.
N Y & N J Lubricant Co. 292 Madison Ave. NYC 17. N. Y.
Pennsylvania Refining Co. 2686 Lisbon Rd. Cleveland 4. Ohio
Pure Oil Co. 35 E Wacker Drive. Chicago 1. Ill.
Shell Oil Co Inc. 50 W 50th St. New York 20. N. Y.
Sinclair Refining Co. 630 Fifth Ave. New York 20. N. Y.
Socony-Vacuum Oil Co. 26 Broadway. New York 4. N. Y.
Sonneborn. L Sons Inc. New York 10. N. Y.
Standard Oil Co of Calif. 225 Bush St. San Francisco 20. Calif.
Standard Oil Co. Indiana. 910 S Michigan Ave. Chicago 80. Ill.
Stewart-Warner Corp. 1826 Diversey Parkway. Chicago 14. Ill.
Sun Oil Co. 1608 Walnut St. Phila 3. Pa.
Swan-Finch Oil Corp. 30 Rockefeller Plaza. New York 20. N. Y.
Texas Co. 135 E 42nd St. New York 17. N. Y.
Tide Water Associated Oil Co. 17 Battery Place. N Y C 4. N. Y.
Waverly Petroleum Products Co. 1724 Chestnut St. Phila 3. Pa.
Xzit Chemical Co. 158 14th St. Hoboken. N. J.

GREASE, ROPE

Adam Cook's Sons Inc. 5 N Stiles St. Linden. N. J.
Borne-Scrymser Co. 632 S Front St. Elizabeth. N. J.
Chard & Howe. 170 Broadway. New York 7. N. Y.
Cities Service Oil Co. 70 Pine St. New York 5. N. Y.
Dixon. Joseph. Crucible Co. 167 Wayne St. Jersey City 3. N. J.
Esso Standard Oil Co. 15 W 51st St. New York 19. N. Y.
Fiske Bros Refining Co. Lubriplate Div. 129 Lockwood St. Newark 5. N. J.
Freedom-Valvoline Oil Co. Freedom. Pa.
Gulf Oil Corp. Gulf Refining Co. 3800 Gulf Bldg. Pittsburgh 30
Ilsley. Doubleday & Co. 170 Broadway. New York 7. N. Y.
Keystone Lubricating Co. 21st & Clearfield Sts. Philadelphia 32. Pa.
N Y & N J Lubricant Co. 292 Madison Ave. N Y C 17. N. Y.
Pennsylvania Refining Co. 2686 Lisbon Rd. Cleveland 4. Ohio
Shell Oil Co Inc. 50 W 50th St. New York 20. N. Y.
Sinclair Refining Co. 630 Fifth Ave. New York 20. N. Y.
Socony-Vacuum Oil Co. 26 Broadway. New York 4. N. Y.

For Flooring Any Area or Running Any Stairways

BATES•GRATES

Wherever you see a BATES-GRATES installation there is safety and strength with plenty of light and ventilation. Neatness too is an assured benefit.

BATES-GRATES engineering gives you every advantage with long time economy. The Hex Cross bar fillet welded to stout main bars is a construction feature that you should investigate. Before you invest in steel flooring and stair treads get BATES details.

• STRONG • SAFE • EASY TO MAINTAIN • DURABLE • MAXIMUM LIGHTING and VENTILATION •

WALTER BATES COMPANY, INC.
JOLIET, ILLINOIS

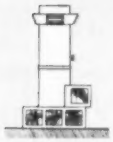
THERMOBLOC

THE MOST *Adaptable* SELF-CONTAINED • DIRECT-FIRED *HEATER ON THE MARKET!*

All the essentials of a heat producing system are contained in THERMOBLOC'S smartly styled casing when it is shipped from the factory. THERMOBLOC requires no assembly, occupies the smallest floor area per btu, and its "straight-through" design provides flexibility of applications not possible with other types of heating devices.

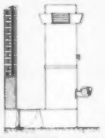
A few of the variety of uses to which THERMOBLOC has been put are shown here. Variations of one of these might just answer *your problem.*

THERMOBLOCS are offered in two standard sizes: Model 300, 30 inches in diameter and 7 feet high, delivers 300,000 btu's at 3000 C.F.M. Model 550, 30 inches in diameter and 10 feet high, delivers 550,000 btu's at 4800 C.F.M. Prat-Daniel Corporation, designers and manufacturers of THERMOBLOC, offer a new bulletin giving complete engineering data to aid you in estimating your heating requirements. Write for your copy today!

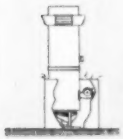


FILTERED AIR—For use where large quantities of dust are present, such as woodworking shops

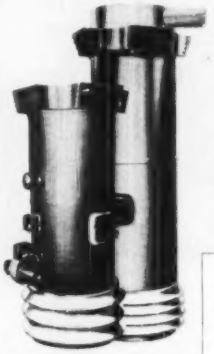
SUSPENDED HEAT—Where necessary, THERMOBLOC can be hung on roof trusses



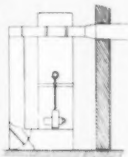
TEMPERING MAKE-UP AIR—Adjustable for 100% make-up air or 100% recirculation



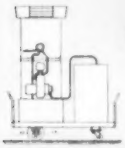
GARAGES and TERMINALS—Where inlet requirements are a minimum height from floor



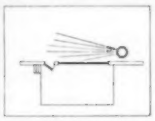
MODEL 300 MODEL 550 THERMOBLOC UNIT HEATERS



HIGH TEMPERATURE—With recirculation duct for drying processes



PORTABLE HEATING—Mounted on steel truck



DOOR CURTAIN—To warm air entering through large open door

THERMOBLOC DIVISION

PRAT-DANIEL CORPORATION

Manufacturers of Prat-Daniel Power Equipment

79-6 WATER ST. E. PORT CHESTER, CONN.

Sonneborn, L Sons Inc, New York 10, N. Y.
Standard Oil Co, Indiana, 910 S Michigan Ave, Chicago 80, Ill.
Stewart-Warner Corp, 1826 Diversey Parkway, Chicago 14, Ill.
Sun Oil Co, 1608 Walnut St, Phila
Tide Water Associated Oil Co, 17 Battery Place, N Y C 4, N. Y.

GUARDS, GAGE GLASS

Ernst Water Column & Gage Co, 250 S Livingston Ave, Livingston, N. J.
Huyette, Paul B Co, Inc, 401 N Broad St, Philadelphia 8, Pa.
Industrial Products Co, 2923 N Fourth St, Philadelphia 33, Pa.
Klemp, Wm F Co, 6601 S Melvina Ave, Chicago 38, Ill.
Lunkenheimer Co, P O Box 360, Annex Station, Cincinnati 14
Wright-Austin Co, 3245 Wight St, Detroit 26, Mich.

GUNS, METAL SPRAY

Condenser Service & Engrg Co, 95 River St, Hoboken, N. J.
Farquhar, A B Co, York, Pa.
Metallizing Co of America, 3520 W Carroll Ave, Chicago 24, Ill.
Metallizing Engrg Co Inc, 38-14 30th St, Long Island City 1, N. Y.

HANGERS, PIPE

Appleton Electric Co, 1701-41 Wellington Ave, Chicago 13, Ill.
Basic Engineers Inc, Prager St at 3rd, Sharpsburg, Pa.
Bergen Point Iron Works, Ft of W 5th St, Bayonne, N. J.
Chase Brass & Copper Co, 236 Grand St, Waterbury 20, Conn.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Crane Co, 836 S Michigan Ave, Chicago 5, Ill.
Crouse Hinds Co, Wolf & Seventh N, Syracuse 1, N. Y.
Genspring Inc, 500 Fifth Ave, New York 18, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, New York 17, N. Y.
Grinnell Co Inc, 260 W Exchange St, Providence 1, R. I.
Korfund Co Inc, 48-48E 32nd Pl, Long Island City 1, N. Y.
Leibfried, C H Mfg Corp 95-101 Guernsey St, Bklyn, N. Y.
Midwest Piping & Supply Co Inc, Second & Miller Sts, St Louis 4, Mo.
National Valve & Mfg Co, 3102 Liberty Ave, Pittsburgh 1, Pa.
Power Piping Div, Blaw-Knox Co, 1525 Pennsylvania Ave, Pittsburgh 12, Pa.
Reintjes, Geo P, Co, 2517 Jefferson St, Kansas City, Mo.
Rockwood Sprinkler Co, 38 Harlow St, Worcester 5, Mass.
Walworth Co, 60 E 42nd St, New York 17, N. Y.

HANGERS, SHAFT

American Pulley Co, 4200 Wissahickon Ave, Phila 29, Pa.
Bond, Charles Co, 617-623 Arch St, Phila 6, Pa.
Boston Gear Wks, 14 Hayward St, Quincy 71, Mass.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Continental Gin Co, 4500 S Fifth Ave, Birmingham 2, Ala.
Dick, R & J Co, Inc, 28 Sade St, Passaic, N. J.
Dodge Mfg Corp, Mishawaka, Ind
Filer & Stowell Co, 147 E Becher St, Milwaukee 7, Wis.
Jeffrey Mfg Co, 932-99 N Fourth St, Columbus 16, Ohio
Link-Belt Co, 300 W Pershing Rd, Chicago 9, Ill.
Medart Co, 100 Potomac St, St Louis 18, Mo.
Sprout, Waldron & Co, Muncy, Pa.
Standard Pressed Steel Co, Jenkintown, Pa.
Wood's T B Sons Co, Fifth Ave, Chambersburg, Pa.

HAULERS, CAR

Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Hevi & Patterson Inc, 55 Water St, Pittsburgh 22, Pa.
Jeffrey Mfg Co, 932-99 N Fourth St, Columbus 16, Ohio
Joy Mfg Co, Dept 5, Oliver Bldg, Pittsburgh 22, Pa.
Link-Belt Co, 300 W Pershing Rd, Chicago 9, Ill.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.

HEAT EXCHANGERS

Adams, R P Co Inc, 211 E Park Drive, Buffalo 17, N. Y.
Alberger Heater Co, 280 Chicago St, Buffalo 4, N. Y.
Alco Products Div, American Locomotive Co, Dunkirk, N. Y.
Aluminum Co of America, 1987 Gulf Bldg, Pittsburgh, Pa.
American District Steam Co, Bryant St, North Tonawanda, N. Y.
American Locomotive Co, Schenectady 5, N. Y.
Andale Co, 1604 Arch St, Phila, Pa.
Bell & Gossett Co, 8200 N Austin Ave, Morton Grove, Ill.
Bethlehem Steel Co, Bethlehem, Pa.
Biggs Boiler Works, 1000 Bank St, Akron 5, Ohio
Black, Sivalls & Bryson Inc, Power & Light Bldg, Kansas City 6, Mo.
Brown Fintube Co, Elyria, Ohio
Brownell Co, 306 N Findlay St, Dayton 1, Ohio
Clifford Mfg Co, 154 Grove St, Waltham 54, Mass.
Cochrane Corp, 17th St & Allegheny Ave, Phila 32, Pa.
Coen Co, 40 Boardman Place, San Francisco 3, Calif.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Cook Electric Co, 2700 Southport Ave, Chicago 14, Ill.
Corning Glass Works, Corning, N. Y.
Croll-Reynolds Engrg Co Inc, 17 John St, New York 7, N. Y.
Davis Engrg Corp, 1064 E Grand St, Elizabeth 4, N. J.
Dutton, C H Co, Portage & Gibson Sts, Kalamazoo, Mich.
Eastern Industries Inc, 296 Elm St, New Haven 6, Conn.
Farrar & Trefts Inc, 20 Milburn St, Buffalo 12, N. Y.
Foster Wheeler Corp, 165 Broadway, New York 6, N. Y.
Frick Co, W Main St, Waynesboro, Pa.
General American Transportation Corp, Sharon, Pa.
General Electric Co, Air Conditioning Dept, 5 Lawrence St, Bloomfield, N. J.
General Fittings Co, 123 Georgia Ave, Providence 5, R. I.
Goodyer Industries, 224 S Michigan Ave, Chicago 4, Ill.
Graver Tank & Mfg Co Inc, 4809 Todd Ave, East Chicago, Ind.
Griscom-Russell Co, 285 Madison Ave, New York 17, N. Y.
Harrison Radiator Div, General Motors Corp, Lockport, N. Y.
Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Henszey Co 202½ Water St, Watertown, Wis.
Hicks, S D & Son Co, 1671 Hyde Park, Boston 36, Mass.
Kellogg, M W Co, 225 Broadway, N. Y. 7, N. Y.
Kopperman, Joseph & Sons, 310-16 New Sts, Phila 6, Pa.
Koven, L O, & Brother Inc, 154 Ogden Ave, Jersey City 7, N. J.
Lummus Co, 259 W 14th St, New York 17, N. Y.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
Marion Machine, Foundry & Supply Co, Marion, Ind.
Marley Co, Inc, 3001 Fairfax Rd, Kansas City 15, Kans.
Modine Mfg Co, Racine, Wis.
Murray, D J, Mfg Co, Wausau, Wis.
National Carbon Co, Inc, 30 E 42nd St, New York 17, N. Y.
National Pipe Bending Co, 114 River St, New Haven 13, Conn.
Niagara Blower Co, 405 Lexington Ave, New York 17, N. Y.
Nooter Corp, 1400 S 2nd St, St Louis 4, Mo.
Parker Appliance Co, 17325 Euclid Ave, Cleveland 12, Ohio
Patterson-Kelley Co Inc, 129 Burson St, East Stroudsburg, Pa.
Porter, H K, Co, Inc, 1932 Oliver Bldg, Pittsburgh 22, Pa.
Prat-Daniel Corp, 74 S Water St, E Port Chester, Conn.
Pritchard, J F & Co, 908 Grand Ave, Kansas City 6, Mo.
Quaker City Iron Wks, Aramingo Ave & Ontario St, Phila 34, Pa.
Reznor Mfg Co, Power St, Mercer, Pa.

Ross Heater & Mfg Co Inc. 1407 West Ave. Buffalo 13, N. Y.
Schaub, Fred H Engrg Co Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22, Pa.
Sims Co. 1402 E 18th St. Erie, Pa.
Sims Pump Valve Co Inc. 145 Hudson St. New York 13, N. Y.
Smith, A O Corp. 3533 N 27th St. Milwaukee 1, Wisc.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7, Calif.
Steamaster Automatic Boiler Co. 5819 South Compton Ave. Los Angeles 11, Calif.
Steel Products Corp. 52 Vanderbilt Ave. New York 17, N. Y.
Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14, Ill.
Struthers Wells Corp. Warren, Pa.
Taco Heaters Inc. 123 South St. Providence, R. I.
Titusville Iron Works Co. Div Struthers Wells Corp. Titusville, Pa.
Trane Co. LaCrosse, Wis.
Union Diesel Engine Co. 2200 E 7th St. Oakland 6, Calif.
Vogt, Henry, Machine Co. 1000 W Ormsby St. Louisville 10, Ky.
Water Cooling Equip Corp. New Hampshire & Webster Rd. St Louis 23, Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30, Pa.
Whitlock Mfg Co. 46 South St. Hartford 1, Conn.
Whittington Pump & Engrg Corp. 1126 Prospect St. Indianapolis 3, Ind.
Wilson Engrg Corp. 122 S Michigan Ave. Chicago, Ill.
Worthington Pump & Machy Corp. Harrison, N. J.
Young Radiator Co. 709 S Marquette St. Racine, Wis.

HEATERS, AIR, DIRECT-FIRED

Airtherm Mfg Co. 700 S Spring Ave. St Louis 10, Mo.
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Condenser Service & Engrg Co. 95 River St. Hoboken, N. J.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Dravo Corp. Neville Island, Pittsburgh 25, Pa.
Goodyer Industries, 224 S Michigan Ave. Chicago 4, Ill.
Hastings Air Conditioning Co Inc. 108 South Colorado Ave. Hastings, Nebr.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16, N. Y.
Lee Engrg Co. 95 River St. Hoboken, N. J.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15
Peabody Engrg Corp. 580 Fifth Ave. New York, N. Y.
Petro-Chem Development Co. 120 E 41st St. New York 17, N. Y.
Prat-Daniel Corp. 74 S Water St. E Port Chester, Conn.
Reznor Mfg Co. Power St. Mercer, Pa.
Rockwell, W S Co. 200 Eliot St. Fairfield, Conn.
Ross, J O Engrg Corp. 350 Madison Ave. New York 17, N. Y.
Silent Glow Oil Burner Corp. 850 Windsor St. Hartford 5, Conn.
Surface Combustion Corp. 2375 Dorr St. Toledo 1, Ohio
Thermobloc Div Prat-Daniel Corp. S Water St. E Port Chester, Conn.
Todd Shipyards Corp. Combustion Equip Div. 8116 45th Ave. Elmhurst, L I, N. Y.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4, Ill.

HEATERS, BLAST

Airtherm Mfg Co. 700 S Spring Ave. St Louis 10, Mo.
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
McCord Corp. 2587 E Grand Blvd. Detroit 11, Mich.
McQuay Inc. 1600 Broadway St. N E. Minneapolis 13, Minn.
Modine Mfg Co. Racine, Wis.
Murray, D J. Mfg Co. Wausau, Wis.
Nesbitt, John J Inc. State Rd & Rhawn St. Phila 36, Pa.
Reznor Mfg Co. Power St. Mercer, Pa.
Sturtevant, Div Westinghouse Elec Corp. Hyde Park, Boston, Mass.
Surface Combustion Corp. 2375 Dorr St. Toledo 1, Ohio
Trane Co. LaCrosse, Wis.
Vulcan Electric Co. 88 Holten St. Danvers, Mass.
Wing, L J. Mfg Co. Linden, N. J.
Young Radiator Co. 709 S Marquette St. Racine, Wis.

HEATERS, DEAERATING

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3, N. J.
Bogue Electric Co. 52 Iowa Ave. Paterson 3, N. J.
Cochrane Corp. 17th St & Allegheny Ave. Phila 32, Pa.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Elliott Co. Jeannette, Pa.
Graver Water Conditioning Co. 216 W 14th St. New York 11, N. Y.
Hoppes Mfg Co. Box 906, Springfield, Ohio
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Sims Co. 1402 E 18th St. Erie, Pa.
Stickle Steam Specialty Co. 2265 Valley Ave. Indianapolis 1, Ind.
Swartwout Co. 18511 Euclid Ave. Cleveland 12, Ohio
Whitlock Mfg Co. 46 South St. Hartford 1, Conn.
Worthington Pump & Machy Corp. Harrison, N. J.

HEATERS, ENGINE-EXHAUST, GAS

American Locomotive Co. Schenectady 5, N. Y.
Condenser Service & Engrg Co. 95 River St. Hoboken, N. J.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Sims Co. 1402 E 18th St. Erie, Pa.
Tilco-Fin Div. David E Kennedy Inc. 58 Second Ave. Brooklyn 15, N. Y.
Wilson Engrg Corp. 122 S Michigan Ave. Chicago, Ill.

HEATERS, FEEDWATER, CLOSED

Alberger Heater Co. 280 Chicago St. Buffalo 4, N. Y.
Alco Products Div. American Locomotive Co. Dunkirk, N. Y.
American District Steam Co. Bryant St. North Tonawanda, N. Y.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove, Ill.
Brownell Co. 306 N Findlay St. Dayton 1, Ohio
Cochrane Corp. 17th St & Allegheny Ave. Phila 32, Pa.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Croll-Reynolds Engrg Co Inc. 17 John St. New York 7, N. Y.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Elliott Co. Jeannette, Pa.
Foster Wheeler Corp. 165 Broadway. New York 6, N. Y.
Graver Water Conditioning Co. 216 W 14th St. New York 11, N. Y.
Griscom-Russell Co. 285 Madison Ave. New York 17, N. Y.
Hoppes Mfg Co. Box 906, Springfield, Ohio
Johnson Corp. 865 Wood St. Three Rivers, Mich.
Lummus Co. 259 W 14th St. New York 17, N. Y.
National Pipe Bending Co. 114 River St. New Haven 13, Conn.
Patterson-Kelley Co Inc. 129 Burson St. East Stroudsburg, Pa.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Ross Heater & Mfg Co Inc. 1407 West Ave. Buffalo 13, N. Y.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22, Pa.
Sims Co. 1402 E 18th St. Erie, Pa.
Struthers Wells Corp. Warren, Pa.
Titusville Iron Works Co. Div Struthers Wells Corp. Titusville, Pa.
Velocity Steam Production Engrg Inc. 38 S Dearborn. Chicago, Ill.
Vogt, Henry, Machine Co. 1000 W Ormsby St. Louisville 10, Ky.
Vulcan Electric Co. 88 Holten St. Danvers, Mass.
Whitlock Mfg Co. 46 South St. Hartford 1, Conn.

HEATERS, FEEDWATER, OPEN

American Locomotive Co. Schenectady 5, N. Y.
Brownell Co. 306 N Findlay St. Dayton 1, Ohio
Cochrane Corp. 17th St & Allegheny Ave. Phila 32, Pa.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Croll-Reynolds Engrg Co Inc. 17 John St. New York 7, N. Y.
Elliott Co. Jeannette, Pa.
Foster Wheeler Corp. 165 Broadway. New York 6, N. Y.
Graver Water Conditioning Co. 216 W 14th St. New York 11, N. Y.
Hoppes Mfg Co. Box 906. Springfield, Ohio
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Sims Co. 1402 E 18th St. Erie, Pa.
Sims Pump Valve Co Inc. 145 Hudson St. New York 13, N. Y.
Stickle Steam Specialty Co. 2265 Valley Ave. Indianapolis 1, Ind.
Stout, David, & Sons. 7016 Manchester Blvd. St Louis 17, Mo.
Swartwout Co. 18511 Euclid Ave. Cleveland 12, Ohio
Velocity Steam Production Engrg Inc. 38 S Dearborn. Chicago, Ill.
Vulcan Electric Co. 88 Holten St. Danvers, Mass.
Worthington Pump & Machy Corp. Harrison, N. J.

HEATERS, OIL

Airtherm Mfg Co. 700 S Spring Ave. St Louis 10, Mo.
Alberger Heater Co. 280 Chicago St. Buffalo 4, N. Y.
Alco Products Div. American Locomotive Co. Dunkirk, N. Y.
American District Steam Co. Bryant St. N Tonawanda, N. Y.
Andale Co. 1604 Arch St. Phila. Pa.
Bell & Gossett Co. 8200 N Austin Ave. Morton Grove, Ill.
Black, Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6, Mo.
Brown Fintube Co. Elyria, Ohio
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Coen Co. 40 Boardman Pl. San Francisco 3, Calif.
Condenser Service & Engrg Co. 95 River St. Hoboken, N. J.
Croll-Reynolds Engrg Co Inc. 17 John St. New York 7, N. Y.
Crotty Mfg Corp. 133-15 35th Ave. Flushing, N. Y.
Davis Engrg Corp. 1064 E Grand St. Elizabeth 4, N. J.
Dravo Corp. Neville Island. Pittsburgh 25, Pa.
General Fittings Co. 123 Georgia Ave. Providence 5, R. I.
Griscom-Russell Co. 285 Madison Ave. New York 17, N. Y.
Hammel Oil Burning Equip Co. 243 Richmond St. Providence 3, R. I.
Harrison Radiator Div. General Motors Corp. Lockport, N. Y.
Hauck Mfg Co. 136 10th St. Brooklyn 15, N. Y.
Hynes Elec Heating & Process Div. 1815 W Sedgeley Ave. Phila. Pa.
Johanson Water Heater Co. 817 Webster Ave. Chicago 14, Ill.
Kellogg, M W Co. 225 Broadway, N Y. 7, N. Y.
Lockett, A M & Co. Ltd. Whitney Bldg. New Orleans 12, La.
Lummus Co. 259 W 14th St. New York 17, N. Y.
National Airoil Burner Co. 1276 E Sedgley Ave. Phila 34, Pa.
National Pipe Bending Co. 114 River St. New Haven 13, Conn.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15, Calif.
Patterson-Kelley Co Inc. 129 Burson St. East Stroudsburg, Pa.
Quaker City Iron Wks. Aramingo Ave & Ontario St. Phila 34, Pa.
Reuppe Co. 340 N Sacramento Blvd. Chicago 12, Ill.
Ross Heater & Mfg Co Inc. 1407 West Ave. Buffalo 13, N. Y.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22, Pa.
Sims Co. 1402 E 18th St. Erie, Pa.
Southern Coal Co. 331 N Michigan Ave. Chicago 1, Ill.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7, Calif.
Struthers Wells Corp. Warren, Pa.

COCHRANE DEAERATORS

1. TRAY TYPE DEAERATOR

For preventing corrosion in piping, economizers, boilers, etc., by removing dissolved oxygen. Utilizes two-stage heating and parallel downflow principle. Water, preheated by spraying in a steam atmosphere, falls over a tray stack where the temperature is raised to full saturated steam temperature and complete deaeration is effected. Agitation produced by steam flow brings suspended gas bubbles to water surfaces, to be liberated and carried away by the steam. Publication 3005.

2. ATOMIZING DEAERATORS

The Cochrane Atomizing Deaerator is recommended for heating and deaerating corrosive waters and water from cold process softeners. It is especially fitted to the deaeration of water in marine boiler plants. It is also well adapted to handle turbid water and has been applied generally for hot process water softeners. Dissolved gases are largely expelled by spraying the water into a steam atmosphere and complete deaeration accomplished by atomization with a high-velocity steam jet. Publication 4160.

COCHRANE CORPORATION
3106 N. 17th STREET PHILADELPHIA 32, PA.

COCHRANE
SINCE 1863

Motor Driven Revolving Unit Heater

Revolving Discharge Outlets for Thorough Heat Coverage.

The remarkable feature of Wing Revolving Unit Heaters that distinguishes them from other types of heating systems is the fact that the discharge outlets *revolve*. This assures a thorough circulation of the heated air to all parts of the working level regardless of obstacles. The slowly revolving outlets gently distribute the heat continuously in a constantly changing direction, eliminating hot and cold spots, chill corners or concentrated blasts of hot air. Write for Bulletin HR-5.

The Wing Turbine Driven Revolving Heater is a new type of unit heater in which the steam used for heating the air is first used to drive the fan, thus eliminating electric motor. This is accomplished by means of the new Wing All-steel Steam Turbine. The turbine driven heater is especially valuable in installations where there is danger from explosive vapors, etc., although it may be used economically in practically any type of installation. Fixed discharge outlets also available.

Turbine Driven Revolving Unit Heater

50 Vreeland Mills Road, Linden, N. J.

L. J. Wing Mfg. Co.

DO YOU KNOW..

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GRID — cast iron construction withstands corrosive fumes.

GRID — wide fin spacing facilitates easy cleaning.

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GRID — fins are cast integral with the steam chamber assuring even distribution of heat. It's not possible for GRID fins to come loose from the steam chamber to cause loss of heating efficiency.

GRID — design incorporating proper fan sizes, motor speeds and outlet temperatures results in a properly balanced heating unit, especially when high steam pressures are used.

Investigate today GRID systems of high pressure unit heaters, blast coils, and radiation . . . the answer to maintenance-free heating in industry.

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Superior Combustion Industries, Inc. Times Bldg. New York 18, N. Y.
Taco Heaters Inc. 123 South St. Providence, R. I.
Titusville Iron Works Co. Div Struthers Wells Corp. Titusville, Pa.
Todd Ship Yards Corp. Combustion Equip Div. 8116 45th Ave. Elmhurst, N. Y.
Trane Co. LaCrosse, Wis.
U S Machine Corp. 320 N C St. Lebanon, Ind.
Vogt, Henry, Machine Co. 1000 W Ormsby St. Louisville 10, Ky.
Vulcan Electric Co. 88 Holten St. Danvers, Mass.
Whitlock Mfg Co. 46 South St. Hartford 1, Conn.

HEATERS, UNIT

Airtherm Mfg Co. 700 S Spring Ave. St Louis 10, Mo.
American Blower Corp. Detroit 32, Mich.
Black, Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6, Mo.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Clow, James B. & Sons 201-299 N Talman Ave. Chicago 12, Ill.
Condenser Service & Engrg Co. 95 River St, Hoboken, N. J.
Dravo Corp. Neville Island, Pittsburgh 25, Pa.
Dunham, C A Co. 400 W Madison St. Chicago 6, Ill.
Fedders-Quigan Corp. 57 Tonawanda St. Buffalo 7, N. Y.
General Electric Co. Apparatus Dept, Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17, N. Y.
Grinnell Co Inc. 260 W Exchange St, Providence 1, R. I.
Hartzell Propeller Fan Co. Downing St. Piqua, Ohio
Hastings Air Conditioning Co Inc. 108 South Colorado Ave. Hastings, Nebr.
Hynes Elec Heating & Process Div. Martin-Quaid Co. 1815 W Sedgley Ave. Phila., Pa.
Ilg Electric Ventilating Co. 2850 N Crawford Ave. Chicago 41, Ill.
Johnson Fan & Blower Corp. 1319 W Lake St. Chicago 7, Ill.
McCord Corp. 2587 E Grand Blvd. Detroit 11, Mich.
McQuay Inc. 1600 Broadway St. N E. Minneapolis 13, Minn.
Modine Mfg Co. Racine, Wis.
Murray, D J, Mfg Co. Wausau, Wis.
National Pipe Bending Co. 114 River St, New Haven 13, Conn.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15
Nelson, Herman, Corp. 1824 3rd Ave, Moline, Ill.
Nesbitt, John J Inc. State Rd & Rhawn St. Phila 36, Pa.
Niagara Blower Co. 405 Lexington Ave. New York 17, N. Y.
Palmer Mfg Corp. 21st Ave at Fillmore St. Phoenix, Ariz.
Prat-Daniel Corp. 74 S Water St. E Port Chester, Conn.
Reznor Mfg Co. Power St, Mercer, Pa.
Silent Glow Oil Burner Corp. 850 Windsor St. Hartford 5, Conn.
Southern Coal Co. 333 N Michigan Ave. Chicago 1, Ill.
Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14, Ill.
Sturtevant, Div Westinghouse Elec Corp. Hyde Park, Boston, Mass.
Surface Combustion Corp. 2375 Dorr St, Toledo 1, Ohio
Thermobloc Div Prat-Daniel Corp. S Water St. E Port Chester, Conn.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Wiegand, Edwin L Co. 7500 Thomas Blvd. Pittsburgh 8, Pa.
Wilson Engrg Corp. 122 S Michigan Ave, Chicago 3, Ill.
Wing, L J, Mfg Co. Linden, N. J.
Young Radiator Co. 709 S Marquette St. Racine, Wis.
Zink, John Co. 4401 South Peoria, Tulsa 1, Okla.

HEATERS, WATER SUPPLY

Alberger Heater Co. 280 Chicago St. Buffalo 4, N. Y.
Alert Boiler & Mfg Co. 315 W Woodbridge St. Detroit 26, Mich.
American District Steam Co. Bryant St, N Tonawanda, N. Y.
American Locomotive Co. Schenectady 5, N. Y.
Black, Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6, Mo.
Brownell Co. 306 N Findlay St, Dayton 1, Ohio
Cleaver-Brooks Co. 326 E Keefe Ave. Milwaukee 12, Wis.
Cochrane Corp. 17th St & Allegheny Ave. Phila 32, Pa.
Condenser Service & Engrg Co. Inc. 95 River St, Hoboken, N. J.
Croll-Reynolds Engrg Co Inc. 17 John St. New York 7, N. Y.
Davis Engrg Corp. 1064 E Grand St, Elizabeth 4, N. J.
Dutton, C H Co. Portage & Gibson Sts. Kalamazoo, Mich.
General Fittings Co. 123 Georgia Ave, Providence 5, R. I.
Griscom-Russell Co. 285 Madison Ave, New York 17, N. Y.
Hotstream Heater Co. 2363 E 69th St, Cleveland 4, Ohio
Hynes Elec Heating & Process Div. Martin-Quaid Co. 1815 W Sedgley Ave. Phila., Pa.
Johnson Corp. 865 Wood St, Three Rivers, Mich.
Kewanee Boiler Corp. Franklin St & "Q" Tracks, Kewanee, Ill.
National Pipe Bending Co. 114 River St, New Haven 13, Conn.
O'Brien Steam Spec Co. Inc. 312 Heffernan Bldg. Syracuse 2, N. Y.
Patterson-Kelley Co Inc. 129 Burson St. East Stroudsburg, Pa.
Petroleum Heat & Power Co. Stamford, Conn.
Pick Mfg Co. West Bend, Wis.
Ray Oil Burner Co. 401 Bernal Ave. San Francisco 12, Calif.
Ross Heater & Mfg Co. Inc. 1407 West Ave, Buffalo 13, N. Y.
Sims Co. 1402 E 18th St, Erie, Pa.
Stout, David, & Sons, 7016 Manchester Blvd. St Louis 17, Mo.
Taco Heaters Inc. 123 South St. Providence, R. I.
Vulcan Electric Co. 88 Holten St. Danvers, Mass.
Whitlock Mfg Co. 46 South St. Hartford 1, Conn.
York-Shipley Inc. York, Pa.

HEATING SYSTEMS, HOT WATER, STEAM, VACUUM, VAPOR

American Hydrotherm Co. 215 E 27 St. New York 16, N. Y.
Bell & Gossett Co. 8200 N Austin Ave, Morton Grove, Ill.
Cashin, W D Co. 69 "A" St, Boston 27, Mass.
Central Automatic Sprinkler Co. 4th & Cannon Ave. Lansdale, Pa.
Condenser Service & Engrg Co. Inc. 95 River St, Hoboken, N. J.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Dunham, C A Co. 400 W Madison St. Chicago 6, Ill.
Dutton, C H Co. Portage & Gibson Sts. Kalamazoo, Mich.
General Electric Co. Air Conditioning Dept. 5 Lawrence St. Bloomfield, N. J.
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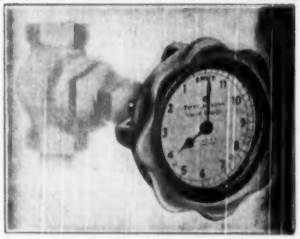

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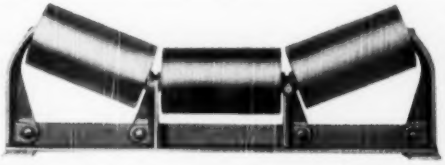

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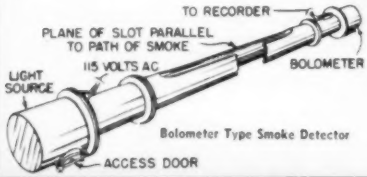

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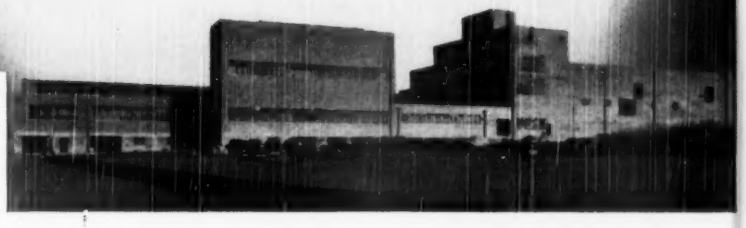

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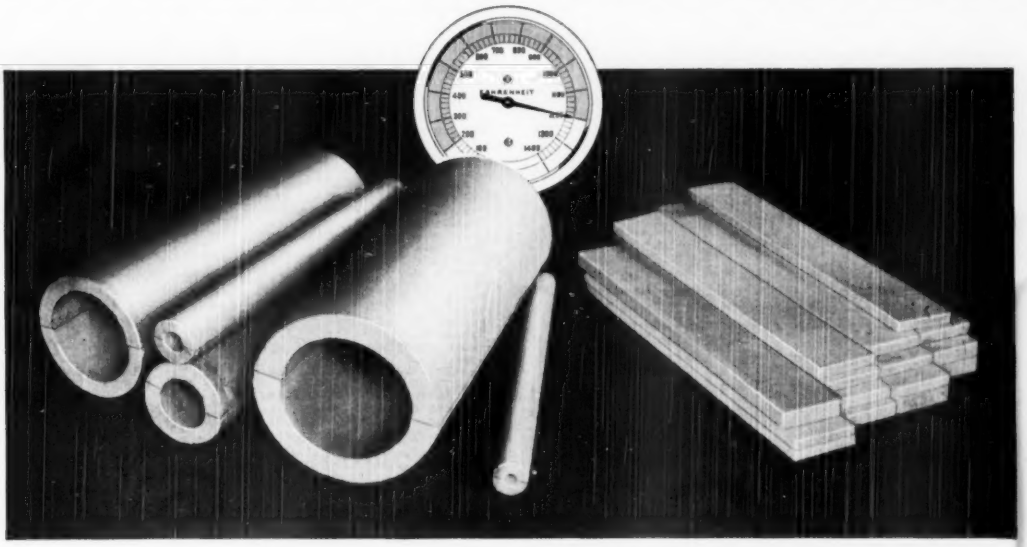

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Griscom-Russell Co. 285 Madison Ave. New York 17. N. Y.
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Illinois Engrg Co. Racine Ave & 20th Pl. Chicago 8. Ill.
Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
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Kopperman. Joseph & Sons. 310-16 New St. Phila 6. Pa.
Lukens Steel Co. Coatesville. Pa.
National Valve & Mfg Co. 3102 Liberty Ave. Pittsburgh 1. Pa.
Nooter Corp. 1400 S 2nd St. St. Louis 4. Mo.
O Z Electrical Mfg Co Inc. 262 Bond St. Brooklyn 2. N. Y.
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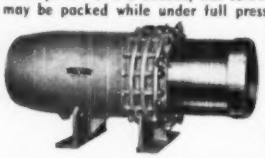
Yarnall-Waring Co. Chestnut Hill. Philadelphia 18. Pa.
Zallea Bros. 801 Locust St. Wilmington 99. Del.

YARWAY

GUN-PAKT EXPANSION JOINTS

Wrought steel, cylinder guided. Gun-pakt and Gland-pakt types. Gun-pakt *(illustrated)*, the most revolutionary Expansion Joint development of the decade, has screw guns for plastic packing; may be packed while under full pressure. Gland-pakt has ring type packing. Sliding sleeves are chromium plated. Single and double end styles, flanged and welding ends, 2" to 24". Also all-brass in smaller sizes. Thousands in use. Proved by years of service.



Catalog EJ-1912

See other Yarway Advertisements on pages 96, 125, 130, 139

YARNALL-WARING COMPANY, 100 MERMAID AVE. PHILA. 18, PA.

ADSCO offers the most complete line of

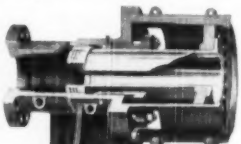
EXPANSION JOINTS

available from any manufacturer

Corruflex PACKLESS EXPANSION JOINTS

Completely packless; require no maintenance. Furnished in single units, with traverse to 7½", and double units, with traverse to 15". Ends may be flanged or beveled for welding. Furnished in copper, stainless steel or other alloys, and with internal sleeves if required. For pressures from vacuum to 300 lbs. and temperatures up to 1600 F. In a wide range of sizes from 3" to 24". *Write for Bulletin No. ZB-35-51.*

Piston-Ring SLIP TYPE EXPANSION JOINTS



The preferred type of slip joint. Can be packed under full operating pressure. Piston rings hold the line pressure during the servicing operation. Single and double units with traverse of 4", 8" or 12" per slip. Ends may be flanged or for welding. For pressures up to 600 lbs. and temperatures up to 750 F. Slip type joints are available in pipe sizes from 1½" to 24". *Send for Bulletin No. ZB-35-15F.*

Because ADSCO builds complete lines of both slip and packless expansion joints, only ADSCO can make both an expert analysis of your expansion problem and an impartial recommendation for its solution.

AMERICAN DISTRICT STEAM CO.

NORTH TONAWANDA, N. Y.

Since 1877

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Flexo Supply Co. 4655 Page Blvd. St Louis 8. Mo.
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Johnson Corp. 865 Wood St. Three Rivers. Mich.
Seamlex Co. Inc. 41-23 24th St. Long Island City 1. N. Y.
Thornhill-Craver Co Inc. 1111 Lockwood Dr. Houston. Texas
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Zallea Bros. 801 Locust St. Wilmington 99. Del.

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Chicago Belting Co. 125 N Green St. Chicago 7. Ill.
Clipper Belt Lacer Co. 974 Front Ave. N W. Grand Rapids 2. Mich.
Crescent Belt Fastener Co. 480 Lexington Ave. New York 17. N. Y.
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Rhoads. J E & Sons. 35 N 6th St. Phila 6. Pa.
Schieren. Chas A. Co. 30 Ferry St. New York 7. N. Y.
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Williams. I B. & Sons. 51 Washington St. Dover. N. H.

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Graton & Knight Co. 356 Franklin St. Worcester 4. Mass.
Houghton. E F & Co. 303 Lehigh Ave. Phila 32. Pa.
Mark. Clayton. & Co. 1900 Dempster St. Evanston. Ill.
Rhoads. J E & Sons. 35 N 6th St. Phila 6. Pa.
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Shingle Leather Co. 1300 Walnut St. Camden. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
Williams. I B & Sons. 51 Washington St. Dover. N. J.

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Trico Fuse Mfg Co. 2948 N 5th St. Milwaukee 12. Wisc.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

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Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15. Wis.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14. Ill.
Trico Fuse Mfg Co. 2948 N 5th St. Milwaukee 12. Wis.

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Cleco Div. Reed Roller Bit Co. P O Box 2119. Houston 1. Texas
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Gits Bros Mfg Co. 1846 S Kilbourne Ave. Chicago 23. Ill.
Hills-McCanna Co. 2369 Nelson St. Chicago 18. Ill.
Lonergan. J E Co. 211 Race St. Phila 6. Pa.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14
McCullough Mfg Co. 2632-2634 Central Ave. Minneapolis 13. Minn.
Manzel Div. Frontier Industries Inc. 315 Babcock St. Buffalo 10. N. Y.
New Haven Vibrator Co. 137 Chestnut St. New Haven 7. Conn.
Nugent. Wm W. & Co Inc. 402 N Hermitage Ave. Chicago 22. Ill.
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio

CMH EXPANSION JOINTS FLEXIBLE METAL HOSE

CMH FREE-FLEXING EXPANSION JOINTS

. . . for pressures to 50 psi . . . temperatures to 1600° F.

CMH Free-Flexing Expansion Joints are made with single or multiple corrugations. Designed for expansion travel up to 1" per unit. Used in low to moderate pressure systems for controlling expansion and correcting piping misalignment. Misalignment correction or offset motion is calculated as 1/16" per corrugation when two or more corrugations are used.

Standard sizes from 3" to 30" I.D. in either stainless steel or copper. Available with or without stainless steel on Monel internal sleeves.

CMH Free-Flexing Expansion Joint with flanged ends.

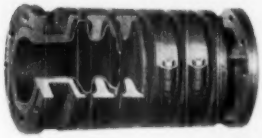
CMH Free-Flexing Expansion Joint with welding ends.

CMH CONTROLLED-FLEXING EXPANSION JOINTS

. . . for pressures up to 300 psi . . . temperatures to 1600° F.

CMH Controlled-Flexing Expansion Joints combine CMH **"engineered curvature of corrugations"** with precision designed control rings. The corrugation-mated control rings provide guided flexing of the joint and prevent any permanent deformation of corrugations. Control rings are firmly anchored into corrugations to close working dimension tolerances. Expansion travel up to 7½" may be secured with a single CMH Expansion Joint.

Standard sizes from 3" to 30" I.D. in either stainless steel or copper. Available with or without stainless steel or Monel internal sleeves.



Left — CMH Controlled Flexing Expansion Joint with flanged ends. (shown cutaway)

Right — CMH Controlled Flexing Expansion Joint with welding ends.

CMH FLEXONIFLEX EXPANSION JOINTS

. . . for pressures to 1500 psi . . . temperatures to 1600° F.

CHM FLEXONIFLEX units make it possible to utilize the expansion joint's advantages of compactness and simplicity of installation at pressures far beyond those which had previously been considered safe. 1500 psi is a nominal pressure, units already having been designed and made for pressures well in excess of this.

Standard **FLEXONIFLEX** units have stainless steel pressure carriers of the bellows type formed within integral control rings and end sections. They are available in single or multiple ply, lined or unlined. Sizes range from ⅝" through the normal range of high pressure pipe sizes.

CMH FLEXIBLE METAL HOSE for every industrial service

CMH REX-WELD Corrugated Flexible Metal Hose

REX-WELD is the all-metal corrugated flexible metal hose for pressures to 5000 psi. and temperatures to 1000°F. Pressure tight for handling searching liquids and gases. Available in steel and bronze. TYPES RW-80 and RW-81 have annular corrugations; Sizes 3/16" to 2" I.D. TYPES RW-90 and RW-91 have helical corrugations; sizes 3/16" to 4" I.D.

COUPLINGS — "Rex-Tite" Mechanical Couplings are available for temperatures over 250°F, soldered couplings for temperatures under 250°F. Flanges and nozzles as required.

Type RW-90 Unbraided
Type RW-91 Braided

REX - TUBE RT-15 fully locked, asbestos packed, is the utility flexible interlocked metal hose for handling saturated steam, loading and unloading tankers and barges, steaming out tank cars, handling tar, asphalt and similar substances. For pressures up to 500 psi. (constant) and temperatures up to 600°F. Rugged—durable—dependable. Sizes ½" to 12"; steel or bronze.

CMH REX-TUBE Interlocked Flexible Metal Hose

COUPLINGS — "Heat Proof" packed-on couplings are available for RT-15 where temperatures exceed 250°F., soldered couplings for temperatures under 250°F. and flanged where required.

In addition to the products described above, CMH manufactures all standard types of flexible metal hose, both convoluted and corrugated in a variety of metals; stainless steel and brass bellows; various conduits and special assemblies of these components. Write for literature describing the particular hose type to meet your needs.

CHICAGO METAL HOSE CORPORATION
MAYWOOD, ILLINOIS
Plants at Maywood, Elgin and Rock Falls, Illinois
In Canada: Canadian Metal Hose Co., Ltd., Brampton, Ontario

advertised in this issue see advertisers' index pages 222-223

METERS
FLOW-COAL-FUEL-OIL

BAILEY METERS

FLOW METERS

It doesn't matter what type of fluid you wish to measure — there is a Bailey Fluid Meter for the job. Bailey Meters indicate, record, control, and integrate the flow of practically any fluid from steam to black liquor.

The inherently correct principle upon which the Bailey Fluid Meter operates, combined with a simple, sturdy mechanism, insures exceptional accuracy with unfailing performance.

It is completely described in Bulletin No. 301-B.

Boiler Meter

BOILER METERS

This boiler operating guide will help you to get most economical performance from your boiler. Records of Steam Flow, Air Flow and Flue Gas Temperature are all included on one chart, to show at a glance whether best combustion efficiency and furnace conditions exist.

Write for Bulletin No. 46-B.

COAL METERS

Human errors and uncertainties in weighing, due largely to changes in moisture content of coal, are eliminated by the Bailey Coal Meter.

It operates on the volumetric principle of measurement, to give a reliable check on the amount of coal delivered to each stoker or pulverizer in a plant, showing results within 1 per cent to 3 per cent of actual coal weight.

This versatile measuring device is not limited to coal alone. It is ideal for measurement of other granular materials such as ore, crushed rock, and cement clinker.

Described in Bulletin No. 221-A.

Coal Meter

FUEL-OIL METERS

The Bailey Fuel-Oil Meter (Area Type) eliminates the need for primary elements and connecting piping. Installed directly in the fuel line, it transmits measurements to standard Bailey electronic receivers.

For return type burners, measurement of fuel burned is accomplished by an electrical circuit which subtracts return line rate of flow from supply line rate of flow.

Write for Bulletin 233.

Area Meter Transmitter

BAILEY METER COMPANY
1016 IVANHOE ROAD · CLEVELAND 10, OHIO

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Rockwell. W S Co. 200 Eliot St. Fairfield. Conn.
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Sticht. Herman H. Co. 27 Park Pl. New York 7. N. Y.
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Weston Electric Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

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Allegheny Ludlum Steel Corp. Oliver Bldg. Pittsburgh 22. Pa.
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Babcock & Wilcox. 85 Liberty St. New York 6. N. Y.
Carnegie-Illinois Steel Corp. 434 Fifth Ave. Pittsburgh 30. Pa.
Carpenter Steel Co. PO Box 110. Roselle. N. J.
Duriron Co Inc. Dayton 1. Ohio
Haynes Stellite Co. 725 S Lindsay St. Kokomo. Ind.
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Kellogg. M W Co. 225 Broadway. New York 7. N. Y.
Lukens Steel Co. Coatesville. Pa.
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Division Lead Co. 836 W Kinzie St. Chicago 22. Ill.
Magnolia Metal Co. 18 W Jersey St. Elizabeth 4. N. J.

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Ampco Metal Inc. 1745 S 38th St. Milwaukee 4. Wis.
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Dodge Mfg Corp. Mishawaka. Ind.
Eagle-Picher Co. American Bldg. Cincinnati 1. Ohio
Magnolia Metal Co. 18 W Jersey St. Elizabeth 4. N. J.
Shook Bronze Corp. Lima. Ohio

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American Brass Co. 25 Broadway. New York 4. N. Y.
American Steel & Wire Co. Rockefeller Bldg. Cleveland 13. Ohio
Ampco Metal Inc. 1745 S 38th St. Milwaukee 4. Wis.
Armco Steel Corp. 703 Curtis St. Middletown. Ohio
Babcock & Wilcox Co. 85 Liberty St. New York 6. N. Y.
Bethlehem Steel Co. Bethlehem. Pa.
Carnegie-Illinois Steel Corp. 434 Fifth Ave. Pittsburgh 30. Pa.
Carpenter Steel Co. P O Box 116. Roselle. N. J.
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Electro Alloys Div. American Brake Shoe Co. Elyria. Ohio
Haynes Stellite Co. 725 S Lindsay St. Kokomo. Ind.
Inland Steel Co. 38 S Dearborn St. Chicago 3. Ill.
International Nickel Co. Inc. 67 Wall St. New York 5. N. Y.
Jones & Laughlin Steel Corp. 3rd Ave & Ross St. Pittsburgh 30. Pa.
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Lukens Steel Co. Coatesville. Pa.
Mallory. P R & Co Inc. 3029 E Washington St. Indianapolis 6. Ind.
Murray. A B. Co Inc. 608 Green Lane. Elizabeth. N. J.
Orange Roller Bearing Co. 557 Main St. Orange. N. J.
Pittsburgh Steel Co. Grant Bldg. Pittsburgh 30. Pa.
Revere Copper & Brass Inc. 230 Park Ave. New York 17. N. Y.
Sivyer Steel Casting Co. 1675 S 43rd St. Milwaukee 14. Wis.
Tennessee Coal. Iron & RR Co. U S Steel Sub. Brown Marx Bldg. Birmingham. Ala.

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Armco Steel Corp. 703 Curtis St. Middletown. Ohio
Babcock & Wilcox. 85 Liberty St. New York 6. N. Y.
Carnegie-Illinois Steel Corp. 434 Fifth Ave. Pittsburgh 30. Pa.
Cooper Alloy Foundry Co. Bloy St & Ramsay Ave. Hillside. N. J.
Electro Alloys Div. American Brake Shoe Co. Elyria. Ohio
Haynes Stellite Co. 725 S Lindsay St. Kokomo. Ind.
International Nickel Co. Inc. 67 Wall St. New York 5. N. Y.
Laclede Stoker Co. 4438 Hunt Ave. St Louis 10. Mo.
Lukens Steel Co. Coatesville. Pa.
Mallory. P R & Co Inc. 3029 E Washington St. Indianapolis 6
Murray. A B. Co Inc. 608 Green Lane. Elizabeth. N. J.
Pittsburgh Steel Co. Grant Bldg. Pittsburgh 30. Pa.
Sivyer Steel Casting Co. 1675 S 43rd St. Milwaukee 14. Wis.
Tennessee Coal. Iron & RR Co. U S Steel Sub. Brown Marx Bldg. Birmingham. Ala.

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Croll-Reynolds Co Inc. 17 John St. New York 7, N. Y.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Roots-Connersville Blower Corp. 900 West Mount St. Connersville. Indiana
Simplex Valve & Meter Co. 6870 Upland St. Phila 42. Pa.
Stewart-Warner Corp. 1826 Diversey Pkwy. Chicago 14. Ill.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.

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Fairfield Engrg Co. 320 Chicago Ave. Marion. Ohio

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Simplex Valve & Meter Co. 6870 Upland St. Phila 42. Pa.

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Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
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Brooks Rotometer Co. Box 432. Lansdale. Pa.
Bowser Inc. Fort Wayne 2. Ind.
Bristol Co. Waterbury 91. Conn.
Builders-Providence. Inc. 345 Harris Ave. Providence 1. R. I.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Dearborn Chemical Co. 310 S Michigan Ave. Chicago 4. Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Hagan Corp. 323 Fourth Ave. Hagan Bldg. Pittsburgh 30. Pa.
Hays Corp. 742 E 8th St. Michigan City. Ind.
Henszey Co. 202½ Water St. Watertown. Wis.
Leeds & Northrup Co. 4970 Stenton Ave. Phila 44. Pa.
Mason-Neilan Regulator Co. 1190 Adams St. Boston 24. Mass.
Minneapolis Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
Republic Flow Meters Co. 2240 Diversey Parkway. Chicago 47. Ill.
Roots-Connersville Blower Corp. 900 W Mount St. Connersville. Ind.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22. Pa.
Simplex Valve & Meter Co. 6870 Upland St. Phila 42. Pa.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville. Pa.
Wallace & Tiernan. 1 Main St. Belleville 9. N. J.

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Burlington Instrument Co. 203 N 3rd St. Burlington. Iowa
Esterline-Angus Co Inc. 1201 Main St. Indianapolis 6. Ind.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Leeds & Northrup Co. 4970 Stenton Ave. Phila 44. Pa.
Roller-Smith. 1756 W Market St. Bethlehem. Pa.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5. N. J.

METERS, pH

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
Bristol Co. Waterbury 91. Conn.
Cambridge Instrument Co Inc. 3007 Grand Central Terminal. New York 17. N. Y.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
Hanson-Van Winkle-Munning Co. Church St. Matawan. N. J.
LaMotte Chemical Products Co. Towson. Baltimore 4. Md.
Leeds & Northrup Co. 4970 Stenton Ave. Phila 44. Pa.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
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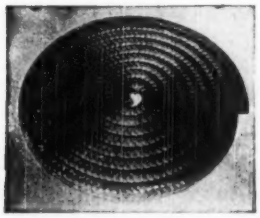

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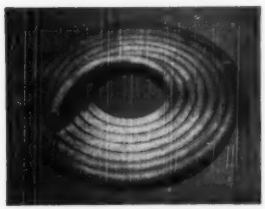

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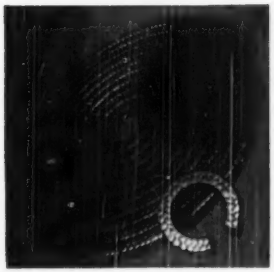

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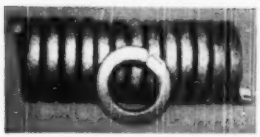

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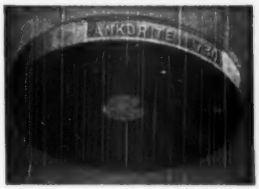

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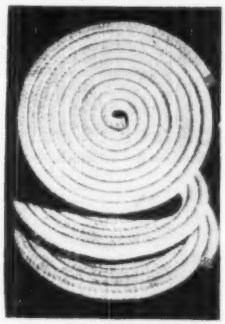

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Thermoid Co. Trenton. N. J.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.

PACKING, SEMI-METALLIC

Allpax Co. Inc. 805 Mamaroneck Ave. Mamaroneck. N. Y.
Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Belmont Packing & Rubber Co. Butler & Sepviva Sts. Phila. Pa.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass.
Collins Packing Co. Inc. 401 N Broad St. Phila 8. Pa.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Darcoid Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Durametallic Corp. Factory St. Kalamazoo 24. Mich.
Ehret Magnesia Mfg Co. Valley Forge. Pa.
Eureka Packing Co. 294-296 46th St. Brooklyn 20. N. Y.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Flexrock Co. 3677 Filbert St. Phila 4. Pa.
France Packing Co. 6512 State Rd. Phila 35. Pa.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Johns-Manville. 22 East 40th St. New York 16. N. Y.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Linear Inc. State Rd & Levick St. Tacony. Phila 35. Pa.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
Metalastic Mfg Corp. 536 Broad St. Glen Rock. N. J.
New Jersey Asbestos Co. 1 Water St. New York. N. Y.
New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Pilot Packing Co. Inc. P O Box 748. Sea Cliff. N. Y.
Q-P Mfg Co. Needham Heights 94. Mass.

Quaker Rubber Corp. Comly St & State Rd. Phila 24. Pa.
Rains Wood-Metal Packings 904 Broadway. Spokane 5. Wash
Raybestos-Manhattan Inc. Packing Div. Manheim. Pa.
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
Union Asbestos & Rubber Co. 1819 S 54th Ave. Cicero 50. Ill.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Walker. James Packing Co Inc. 96 Liberty St. New York 6. N. Y.

PACKING, SHEET

Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Belmont Packing & Rubber Co. Butler & Septiva Sts. Phila 37. Pa.
Boston Woven Hose & Rubber Co. P O Box 1071. Cambridge. Mass.
Chesterton. A W Co. 6 Ashland St. Everett 49. Mass
Collins Packing Co. Inc. 401 N Broad St. Phila 8. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Crane Packing Co. 1830 Cuyler Ave. Chicago 13. Ill.
Darcoid Co. Inc. 145 Sixth Ave. New York 13. N. Y.
Durabla Mfg Co. 114 Liberty St. New York 6. N. Y.
Ehret Magnesia Mfg Co. Valley Forge. Pa.
Eureka Packing Co. 294-296 46th St. Brooklyn 20. N. Y.
Felt Products Mfg Co. 1511 Carroll Ave. Chicago 7. Ill.
Fitzgerald Mfg Co. 691 Main St. Torrington. Conn.
Flexrock Co. 3677 Filbert St. Phila 4. Pa.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
Gilmer. L H Co. Div U. S. Rubber Co. Tacony. Philadelphia 35. Pa.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Goodrich. B F. Co. Akron. Ohio
Goodyear Tire & Rubber Co. 1144 E Market St. Akron 16. Ohio
Greene. Tweed & Co. 322 Elm Ave. North Wales. Pa.
Hewitt-Robins Inc. 370 Lexington Ave. New York 17. N. Y.
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Klingerit Inc. 16 Hudson St. New York 13. N. Y
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New York Belting & Packing Co. 1 Market St. Passaic. N. J.
Pilot Packing Co. Inc. P O Box 748. Sea Cliff. N. Y.
Quaker Rubber Corp. Comly St & State Rd. Phila 24. Pa.
Raybestos-Manhattan. Inc. Packing Div. Manheim. Pa.
Republic Rubber Div. Albert St. Youngstown 1. Ohio
Sea-Ro Packing Co. 133 Wood-Ridge St. Wood-Ridge. N. J.
Sexauer. J A. Mfg Co. Inc. 2503 3rd Ave. New York 51. N. Y.
Sterling Packing & Gasket Co. 1701 Nance St. Houston 10. Texas
Thermoid Co. Trenton. N. J.
Union Asbestos & Rubber Co. 1819 S 54th Ave. Cicero 50. Ill.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Walker. James Packing Co Inc. 96 Liberty St. New York 6. N. Y.

PAINT, ALUMINUM

Aluminum Industries. Inc. 2438 Beekman St. Cincinnati 25. Ohio
Amercoat Corp. 4809 Firestone Blvd. Southgate. Calif.
American-Marietta Co. 43 E Ohio St. Chicago 11. Ill.
Arco Co. 7301 Bessemer Ave. Cleveland 4. Ohio
Armstrong Cork Co. Liberty St. Lancaster. Pa.
Brooks Boiler Treatment Co. 3304 E 87 St. Cleveland. Ohio
Cabot. Samuel Inc. 141 Milk St. Boston 9. Mass.
Carey. Philip. Mfg Co. Lockland. Cincinnati 15. Ohio
Dampney Co of America. 1243 River St. Hyde Park. Boston. Mass.
Dearborn Chemical Co. 310 S Michigan Ave. Chicago 4. Ill.
Dixon Joseph Crucible Co. 167 Wayne St. Jersey City 3. N. J.
Dominion Chemical Co Inc. 11 W 42nd St. New York 18. N. Y.
du Pont de Nemours. E I & Co. Inc. Wilmington 98. Del.
Eagle-Picher Co. American Bldg. Cincinnati 1. Ohio
Esso Standard Oil Co. 15 W 51st St. New York 19. N. Y.
Flintkote Co. 30 Rockefeller Plaza. New York 20. N. Y.
Frictioneeze Corp. P O Box 8304. Fort Worth. Texas
Horn. A C Co Inc. Tenth St & 44th Ave. Long Island City 1. N. Y.
Inertol Co Inc. 480 Frelinghuysen Ave. Newark 5. N. J.
Kellogg. M W Co. 225 Broadway. N. Y. 7. N. Y.
Koppers Co Inc. Koppers Bldg. Pittsburgh 19. Pa.
Magic Chemical Co. 121 Crescent St. Brockton 2. Mass.
Monsanto Chemical Co. 1700 S Second St. St Louis 4. Mo.
Paraffine Co. Inc. 475 Brannan St. San Francisco 19. Calif.
Quigley Co Inc. 527 Fifth Ave New York 17. N. Y.
Rust-Oleum Corp. 2425 Oakton St. Evanston. Ill.
Saverite Engrg Co. 1032 Willow Ave. Hoboken. N. J.
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Sonneborn. L Sons Inc. New York 10. N. Y.
Speco Co. 7308 Associate Ave. Cleveland 9. Ohio
Tremco Mfg Co. 8701 Kinsman Rd. Cleveland. Ohio
Western Chemical Co. 713 Washington St. Kansas City 6. Mo.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Xzit Chemical Co. 158-14th St. Hoboken. N. J.

PAINT, BITUMINOUS-BASE

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Cabot. Samuel Inc. 141 Milk St. Boston 9. Mass.
Carey. Philip Mfg Co. Lockland. Cincinnati 15. Ohio
Esso Standard Oil Co. 15 W 51st St. New York 19. N. Y.
Flintkote Co. 30 Rockefeller Plaza. New York 20. N. Y.
Frictioneeze Corp. P O Box 8304. Fort Worth. Texas
Horn. A C Co Inc. Tenth St & 44th Ave. Long Island City 1. N. Y.
Inertol Co Inc. 480 Frelinghuysen Ave. Newark 5. N. J.
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Koppers Co Inc. Koppers Bldg. Pittsburgh 19. Pa.
Magic Chemical Co. 121 Crescent St. Brockton 2. Mass.
Paraffine Companies Inc. 475 Brannan St. San Francisco 19. Calif.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Skybryte Co. 3125 Perkins Ave. Cleveland 14. Ohio
Sonneborn. L Sons Inc. New York 10. N. Y.
Speco Co. 7308 Associate Ave. Cleveland 9. Ohio
Tremco Mfg Co. 8701 Kinsman Rd. Cleveland. Ohio
Western Chemical Co. 713 Washington St. Kansas City 6. Mo.

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American-Marietta Co. 43 E Ohio St. Chicago 11. Ill.
Arco Co. 7301 Bessemer Ave. Cleveland 4. Ohio
Barrett Div. Allied Chemical & Dye Corp. 40 Rector St. New York 6. N. Y.
Brooks Boiler Treatment Co. 3304 E 87 St. Cleveland. Ohio
Cabot. Samuel Inc. 141 Milk St. Boston 9. Mass.
Dampney Co of America. 1243 River St. Hyde Park. Boston. Mass.
Dixon. Joseph Crucible Co. 167 Wayne St. Jersey City 3. N. J.
Dominion Chemical Co. Inc. 11 W 42nd St. New York 18. N. Y.
Dow Corning Corp. Midland. Mich.
du Pont de Nemours. E I & Co. Inc. Wilmington 98. Del.
Eagle-Picher Co. American Bldg. Cincinnati 1. Ohio
Esso Standard Oil Co. 15 W 51st St. New York 19. N. Y.
Horn. A C Co Inc. Tenth St & 44th Ave. Long Island City 1. N. Y.
Inertol Co Inc. 480 Frelinghuysen Ave. Newark 5. N. J.
Kellogg. M W Co. 225 Broadway. N. Y. 7. N. Y.
Koppers Co Inc. Koppers Bldg. Pittsburgh 19. Pa.
Magic Chemical Co. 121 Crescent St. Brockton 2. Mass.
Monsanto Chemical Co. 1700 S Second St. St Louis 4. Mo.
Paraffine Co. Inc. 475 Brannan St. San Francisco 19. Calif.
Quigley Co Inc. 527 Fifth Ave. New York 17. N. Y.
Rust-Oleum Corp. 2425 Oakton St. Evanston. Ill.
Skybryte Co. 3125 Perkins Ave. Cleveland 14. Ohio
Sonneborn. L Sons Inc. New York 10. N. Y.
Speco Co. 7308 Associate Ave. Cleveland 9. Ohio
Tremco Mfg Co. 8701 Kinsman Rd. Cleveland. Ohio
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Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.

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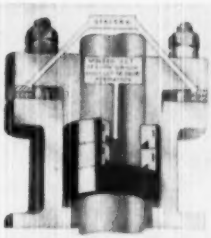

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Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Bethlehem Steel Co, Bethlehem, Pa.
Chicago Bridge & Iron Co, 2454 McCormick Bldg, Chicago 4, Ill.
Condenser Service & Engrg Co, 95 River St, Hoboken, N. J.
Farrar & Trefts Inc, 20 Milburn St, Buffalo 12, N. Y.
Graver Tank & Mfg Co Inc, 4809 Tod Ave, East Chicago, Ind.
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Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Hunt, Rodney, Machine Co, 13 River St, Orange, Mass.
Kellogg, M W Co, 225 Broadway, New York 7, N. Y.
Kirk & Blum Mfg Co, 2874 Spring Grove Ave, Cincinnati 25, Ohio
Koven, L O & Brother, Inc, 154 Ogden Ave, Jersey City 7, N. J.
Lakeside Bridge & Steel Co, 5300 N 33rd St, Milwaukee 9, Wis.
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National Tube Co, Frick Bldg, Pittsburgh 19, Pa.
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Petroleum Iron Works Div, P O Box 3031, Beaumont, Texas
Smith, A O, Corp, 3533 N 27th St, Milwaukee 1, Wisc.
Smith, S Morgan, Co, 500 Lincoln St, York, Pa.
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Taylor Forge & Pipe Wks, P O Box 485, Chicago 90, Ill.

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Chase Brass & Copper Co, 236 Grand St, Waterbury 20, Conn.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Reading Tube Corp, 36-12 47th Ave, Long Island City 1, N. Y.
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Clow, James B. & Sons, 201-299 N Talman Ave, Chicago 12, Ill.
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Division Lead Co, 836 W Kinzie St, Chicago 22, Ill.
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Raybestos-Manhattan Inc, 61 Willett St, Passaic, N. J.
United States Rubber Co, 1230 6th Ave, New York 20, N. Y.

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Armco Drainage & Metal Products, Inc, 703 Curtis St, Middletown, Ohio
Murray, A B Co, Inc, 608 Green Lane, Elizabeth, N. J.
Naylor Pipe Co, 1230 E 92nd St, Chicago 19, Ill.
Shaw, Benjamin F Co, 2nd & Lombard Sts, Wilmington 99, Dela.
Taylor Forge & Pipe Wks, P O Box 485, Chicago 90, Ill.

PIPE, STEEL
Alco Products Div, American Locomotive Co, Dunkirk, N. Y.
Alert Boiler & Mfg Co, 315 W Woodbridge St, Detroit 26, Mich.
American Locomotive Co, Schenectady 5, N. Y.
Armco Drainage & Metal Products, Inc, 703 Curtis St, Middletown, Ohio
Babcock & Wilcox Tube Co, Beaver Falls, Pa.
Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Bethlehem Steel Co, Bethlehem Pa.
Black, Sivalls & Bryson Inc, Power & Light Bldg, Kansas City 6, Mo.
Carpenter Steel Co, P O Box 116, Roselle, N. J.
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Farrar & Trefts Inc, 20 Milburn St, Buffalo 12, N. Y.
Flori Pipe Co, 601 E Red Bud Ave, St Louis, Mo.
Globe Steel Tubes Co, 3839 W Burnham St, Malwaukee 4, Wisc.
Graver Tank & Mfg Co Inc, 4809 Tod Ave, East Chicago, Ind.
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Petroleum Iron Works Div, P O Box 3031, Beaumont, Texas
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Ryerson, Joseph T. & Son, Inc, 16th & Rockwell Sts, Chicago, Ill.
Shaw, Benjamin F Co, 2nd & Lombard Sts, Wilmington 99, Dela.
Smith, A O Corp, 3533 N 27th St, Milwaukee 1, Wisc.
Steel & Tubes Div, Republic Steel Corp, 212 E 131st St, Cleveland 8, Ohio
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Titusville Iron Works Co, Div Struthers Wells Corp, Titusville, Pa.
Tubular Service Co, 32 Broadway, New York, N. Y.
Youngstown Sheet & Tube Co, Youngstown 1, Ohio

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Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12, Pa.
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Ric-Wil Co. 1052 Union Commerce Bldg. Cleveland, Ohio
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Grinnell Co Inc. 260 W Exchange St. Providence 1, R. I.
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Lunkenheimer Co. P O Box 360, Annex Station, Cincinnati 14.
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Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Walworth Co. 60 E 42nd St. New York 17, N. Y.

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Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Murray, A B Co. Inc. 608 Green Lane, Elizabeth, N. J.

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Lapp Insulator Co. Inc. 130 Maple St. Le Roy, N. Y.
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Milton Roy Co. 1305 E Mermaid Lane, Phila 18, Pa.

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International Resistance Co 401 N Broad St. Philadelphia 8, Pa.
Leeds & Northrup Co. 4970 Stenton Ave. Phila 44, Pa.
Mallory, P R & Co Inc. 3029 E Washington St. Indianapolis 6, Ind.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Ohmite Mfg Co. 4835 W Flournoy St. Chicago 44, Ill.
Taglabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Ward Leonard Electric Co. 100 South St. Mount Vernon, N. Y.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5, N. J.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

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Air Preheater Corp. 60 E 42nd St. New York 17, N. Y.
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American Locomotive Co. Schenectady 5, N. Y.
Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
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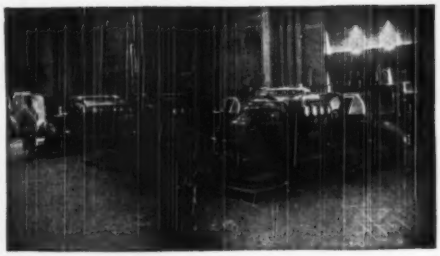

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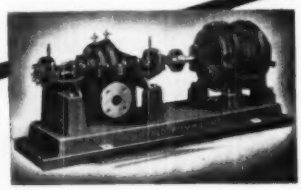

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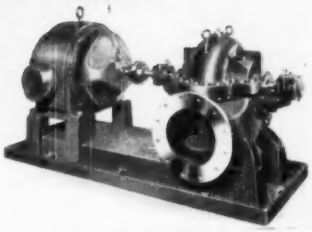

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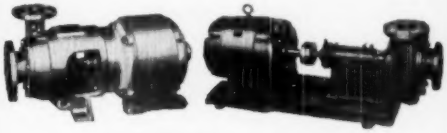

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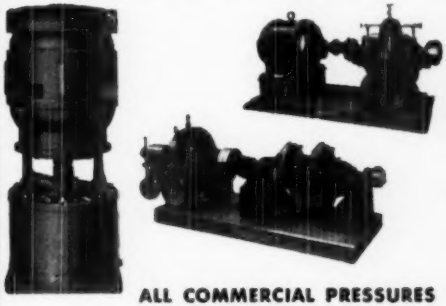

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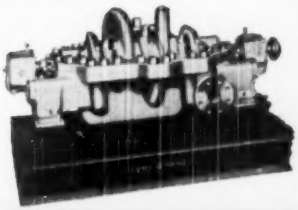

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Smith, A O, Corp, 3533 N 27th St, Milwaukee 1, Wis.
Weil Pump Co, 1530 N Fremont St, Chicago 22, Ill.
Worthington Pump & Machy Corp, Harrison, N. J.

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American-Marsh Pumps, Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
Beach-Russ Co, 50 Church St, New York 7, N. Y.
Chicago Pump Co, 2300 Wolfram St, Chicago 18, Ill.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Dean Bros Pumps Inc, 232 W 10th St, Indianapolis 7, Ind.
Deming Co, Salem, Ohio
Dutton, C H Co, Portage & Gibson Sts, Kalamazoo, Mich.
Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
Gardner-Denver Co, Quincy, Ill.
Hills-McCanna Co, 2369 Nelson St, Chicago 18, Ill.
Lapp Insulator Co, Inc, 150 Maple St, Le Roy, N. Y.
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Novo Engine Co, 702 Porter St, Lansing 5, Mich.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Union Steam Pump Co, Battle Creek, Mich.
Warren Steam Pump Co, Inc, 1234 Bridges Ave, Warren, Pa.
Watson Stillman Co, 108 Aldene Rd, Roselle, N. J.
Weinman Pump Mfg Co, 290 Spruce St, Columbus 8, Ohio
Wilson-Snyder Mfg Div, Oil Well Supply Co, Braddock, Pa.
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American-Marsh Pumps Inc, 99 Capitol Ave, N E, Battle Creek, Mich.
Aurora Pump Co, 616 Loucks St, Aurora, Ill.
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Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
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DeLaval Steam Turbine Co, Trenton 2, N. J.
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Fairbanks, Morse & Co, Fairbanks-Morse Bldg, Chicago 5, Ill.
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Goulds Pumps, Inc, 300 Fall St, Seneca Falls, N. Y.
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Lecourtenay Co, 9 Main St, Newark 5, N. J.
Marlow Pumps, Ridgewood, N. J.
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Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif.
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Worthington Pump & Machy Corp, Harrison, N. J.

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Deming Co. Salem. Ohio
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Eddington Metal Specialty Co. P O Box K. Eddington. Pa.
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Dutton. C H Co. Portage & Gibson Sts. Kalamazoo. Mich.
Fairbanks. Morse & Co. Fairbanks-Morse Bldg. Chicago 5. Ill.
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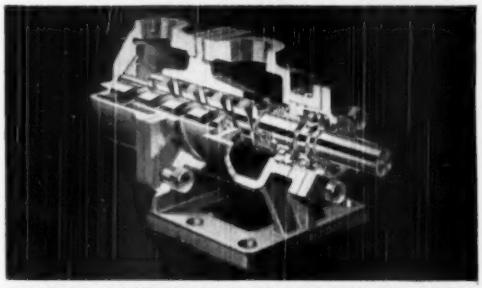

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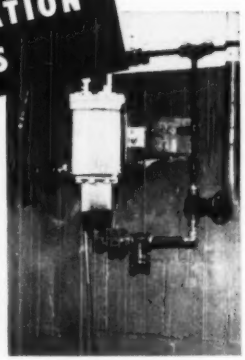
A PRACTICAL WAY TO REDUCE REFRIGERATION COSTS



● As an example, in a 220-ton system a condenser pressure 25 psi above normal wastes $275 of power per month based on a cost of 1¢ per kwh. An Armstrong Purger will get rid of this air, bring the pressure down to normal and eliminate this costly waste. Satisfaction guaranteed.

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Three Rivers, Mich.

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OXYGEN-TEMPERATURE
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BAILEY METERS

BAILEY OXYGEN RECORDER

The Bailey Oxygen Recorder continuously measures the oxygen or excess air content of a gaseous mixture. Exceptional speed is obtained by the use of catalytic combustion on a noble metal filament which forms part of the measuring circuit. On typical installations, changes in oxygen content are indicated in about 10 seconds, and readings stabilize within 30 seconds.

Oxygen Recorder

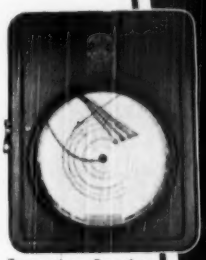
This instrument has a minimum full chart range of 5 per cent Oxygen and a maximum range of 25 per cent. It is sensitive to changes of less than .05 per cent oxygen and has a sustained accuracy within one-quarter of one per cent of actual oxygen content.

It may operate air controls or high and low alarm contacts.

For complete information write for Bulletin 151-A.

BAILEY PYROTRON RESISTANCE THERMOMETER

You can use the Bailey Pyrotron to indicate, record and control temperatures between -300 F and 1200 F. It gives you from one to four continuous records on one circular chart.


Temperature Recorder

With the Bailey Pyrotron you can control temperatures in these three ways:

1. Air-operated control
2. On-Off electrical control
3. Modulated electronic control

Get the full facts about this accurate, sensitive and extremely fast electronic resistance thermometer—

Write for Bulletin No. 230-C.

BAILEY LEVEL RECORDER

The Bailey Level Recorder accurately indicates, records and controls level of liquids under pressure or in open vessels. It is available with float-type, bell-type or bellows-type level measuring devices to best suit your requirements.

Liquid Level Recorder

Write for further information.

BAILEY METER COMPANY
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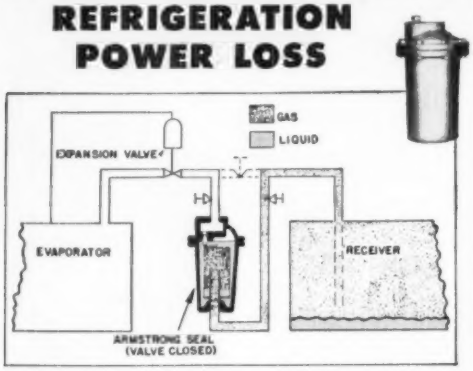
HERE'S A WAY TO CUT A COMMON SOURCE OF REFRIGERATION POWER LOSS



FAILURE to maintain an adequate liquid seal in the refrigeration receiver permits high pressure gas to blow through to the evaporator. The power used to compress this gas is totally wasted.

An Armstrong inverted bucket refrigerant trap will prevent this loss. It automatically closes against gas, permits the flow of liquid only. Prices and details on request.

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The C. H. Wheeler Steam Jet Vacuum Refrigeration System uses only water as the refrigerant and employs the well known basic principle of cooling by flash evaporation. There are no moving parts, except the centrifugal pump rotating elements, consequently maintenance costs are exceedingly low. The condensers may be of the surface, low level jet or barometric jet types, depending upon installation requirements.

Steam Jet Vacuum Refrigerating Systems are ordinarily best adapted to those installations requiring moderate chilled water temperatures from 35° to 65° F., and thus are well suited to such applications as air conditioning and the production of chilled water necessary for cooling operations in the food, chemical and allied industries. Send for Catalog No. 1462.

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STEAM CONDENSERS • WATER COOLING TOWERS • EJECTORS • STEAM JET VACUUM REFRIGERATION

Swartwout FEED WATER REGULATION SYSTEMS

Thermo-Hydraulic System
Bulletin S-20-E

Impulse Regulation System
Bulletin S-27

Swartwout feed water regulation systems—for small boilers ranging up from 25 lbs., or for high-pressure, fast-steaming boilers—assure correct water supply under all load conditions.

Type S-C Thermo-Hydraulic System is composed of three units: Pressure generator mounted on boiler at water level, regulating valve in feed line and connecting tubing. This powerful, closed hydraulic actuating system is extremely flexible. Simple adjustments can change sensitivity, raise or lower level, or stretch out variation in boiler level.

Swartwout's exclusive Impulse Regulation System—air operated for high-pressure, fast-steaming boilers subject to rapid load fluctuation—assures correct level under *any load* by utilizing the very forces that cause false drum level. Impulse Regulation uses the *rate of change* of load to produce a corrective impulse which neutralizes adverse effects of shrink and swell. It may comprise either a two or a three-element system. All controls including manual-automatic selection can be flush-panel mounted.

If you have a problem in feed water regulation, write for special bulletins or contact your nearest Swartwout representative. The Swartwout Company, 18511 Euclid Avenue, Cleveland 12, Ohio. A-3044

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advertised in this issue see advertisers' index pages 222-223

FEED WATER REGULATORS

BAILEY METERS

THREE-ELEMENT CONTROL

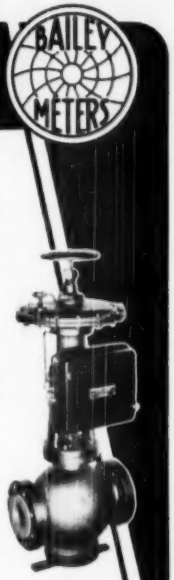
This air-operated system safely handles the exacting requirements of boilers with high steaming rates and relatively small water storage. It accurately maintains the rate of feed water input equal to the rate of steam output and can be adjusted to hold constant level or level which varies with rating. *Write for Bulletin 105-B.*

SINGLE-ELEMENT CONTROL

This air-operated system is suited to boilers having medium steaming rates. It gives constant level and the stability of a wide instrument control band. Normal drum level is maintained regardless of the rate of feed water input. *Write for Bulletin 106-B.*

THERMO-HYDRAULIC CONTROL

This self-contained regulator is suited to smaller boilers operating at relatively low rates of steam liberation. It features low installation costs, removable valve parts, and independence of valve location. *Write for Bulletin 83-D.*



Bailey Feed Water Control Valve

BAILEY METER COMPANY
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Swartwout L-1 LIQUID LEVEL and DRAINAGE CONTROLS...

Swartwout Liquid Level Controls Bulletin S-15-A

for

- Stage Heaters — Normal, Emergency and Bypass Control
- Deaerators — Normal, Emergency and Overflow Control
- Horizontal Subcooled Heat Exchangers
- Condenser Hot Wells
- Flash Tanks
- Surge Tanks

Swartwout L-1 Controls assure positive, accurate level control from no load to full load on all your important liquid-containing vessels.

Swartwout displacement type controls operate on balance of forces principle and have little actual movement of parts. Torque-tube design gives smooth, leak-proof operation. Reset and setback features eliminate cycling and hunting...provide for a highly accurate control that maintains levels within ± ½ in. from no load to full load...or give full float length throttling. Available in models with 15 in. to 10 ft. float lengths.

If you have a problem involving liquid level or drainage control, write for special bulletin or contact your nearest Swartwout representative. The Swartwout Company, 18511 Euclid Ave., Cleveland 12, Ohio. A-3014

Swartwout
POWER PLANT EQUIPMENT

Look for the noun in the product listing, for example:

Boilers, Waste-Heat

not

Waste-Heat Boilers

Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8, Ill.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Fisher Governor Co, Marshalltown, Iowa
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
General Regulator Corp. 165 Broadway. New York 6, N. Y.
Griscom-Russell Co. 285 Madison Ave. New York 17, N. Y.
Hagan Corp. 323 Fourth Ave. Hagan Bldg. Pittsburgh 30, Pa.
Hammel-Dahl Co. 243 Richmond St. Providence 3, R. I.
Inferno Co. 115 Ricou St. Shreveport, La.
Johnson Corp. 865 Wood St. Three Rivers, Mich.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Johnston & Jennings Co. Cleveland 14, Ohio
Kieley & Mueller Inc. 2013 43rd St. North Bergen, N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton, Ohio
Leslie Co. 255 Grant Ave. Lyndhurst, N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill.
McDonnell & Miller Inc. 3500 N Spaulding Ave. Chicago 18, Ill.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10, Wis.
Minneapolis Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Natural Gas Equip Inc. 714 Olympic Blvd. Los Angeles 15, Calif.
Northern Equipment Co. 1945 Grove Drive, Erie, Pa.
Penn Electric Switch Co. Goshen, Ind.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Photoswitch Inc. 77 Broadway. Cambridge 42, Mass.
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Ruggles-Klingemann Mfg Co. Foster Court, Salem, Mass.
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33, Pa.
Schaub, Fred H Engrg Co. Inc. 2110 S Marshall Blvd. Chicago, Ill.
Spence Engrg Co Inc. Walden, N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Stets Co. 1440 Broadway, New York 18, N. Y.
Swartwout Co. 18511 Euclid Ave. Cleveland 12, Ohio
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.
Waters Governor Co. 53 Waters Ave. Everett 49, Mass.

REGULATORS, PRESSURE

Ace Instrument Co. Inc. 172 Pacific St. Bklyn 2, N. Y.
Air Reduction Sales Co. 60 E 42nd St. New York 17, N. Y.
Askania Regulator Co. 1603 S Michigan Ave. Chicago 11, Ill.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago, Ill.
Atlas Valve Co. 280-84 South St. Newark 5, N. J.
Atwood & Morrill Co. 48 Loring Ave. Salem, Mass.
Automatic Control Co. 1005 University Ave. St Paul 4, Minn.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44, Pa.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barber-Colman Co. Rockford, Ill.
Bristol Co, Waterbury 91, Conn.
Brooke Engrg Co Inc. 4517 Wayne Ave. Phila 20, Pa.
Cash, A W Co. Decatur 7, Ill.
Cash, A W Valve Mfg Corp. 6616 E Wabash Ave, Decatur, Ill.
Clark Controller Co. 1146 E 152nd St. Cleveland 10, Ohio
Clark Mfg Co. 1830 E 38th St. Cleveland 14, Ohio
Climax Controls Div. Black, Sivalls & Bryson Inc. Box 1529. Tulsa 1, Okla.
Crane Co. 836 S Michigan Ave. Chicago 5, Ill.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8, Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis, Mo.
DeVilbiss Co. 300 Phillips Ave. Toledo 1, Ohio
Dockson Corp. 3639 Wabash Ave, Detroit 8, Mich.
Edison, Thomas A Inc. Instrument Div. West Orange 3, N. J.
Eisler Engrg Co Inc. 757 S 13th St. Newark 3, N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Fisher Governor Co. Marshalltown, Iowa
Foster Engrg Co. 835 Lehigh Ave. Union, N. J.
Foster Wheeler Corp. 165 Broadway, New York 6, N. Y.
Foxboro Co. 38 Neponset Ave. Foxboro, Mass.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
General Regulator Corp. 165 Broadway. New York 6, N. Y.
Gray Co Inc. 60 11th Ave SE. Minneapolis 13. Minn.
Hagan Corp. 323 Fourth Ave. Hagan Blvd. Pittsburgh 30, Pa.
Hammel-Dahl Co. 243 Richmond St. Providence 3, R. I.
Hays Corp. 742 E 8th St. Michigan City, Ind.
Hotstream Heater Co. 2363 E 69th St. Cleveland 4, Ohio
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8, Ill.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7, Ill.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Keckley, O C. Co. 400 W Madison St. Chicago 6, Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen, N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton, Ohio
Leslie Co. 255 Grant Ave, Lyndhurst, N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill.
McDonnell & Miller, Inc. 3500 N Spaulding Ave. Chicago 18, Ill
Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2, Conn.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24, Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10, Wis.
Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Monarch Mfg Wks Inc. 2501 E Ontario St. Phila. 34, Pa.
Mueller Co. 512 W Cerro Gordo St. Decatur 70, Ill.
Natural Gas Equip Inc. 714 Olympic Blvd. Los Angeles 15, Calif.
Northern Equipment Co. 1945 Grove Drive. Erie, Pa.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk, Conn.
Penn Electric Switch Co. Goshen, Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7, Wis.
Permutit Co. 330 W 42nd St. New York 18, N. Y.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14, Ill.
General Power Plant Corp. 381 4th Ave. N. Y. 16, N. Y.
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Ruggles-Klingemann Mfg Co. Foster Court, Salem, Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33, Pa.
Spence Engrg Co Inc. Walden, N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Squires C E. Co. 18502 Syracuse Ave, Cleveland 10, Ohio
Staples & Pfeiffer, 528 Bryant St. San Francisco 7, Calif.
Stewart-Warner Corp. 1826 Diversey Pkwy, Chicago 14, Ill.
Stickle Steam Specialty Co. 2265 Valley Ave. Indianapolis 1, Ind.
Strong, Carlisle & Hammond Co. 1392 W 3rd St. Cleveland, Ohio
Swartwout Co. 18511 Euclid Ave. Cleveland 12, Ohio
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Uehling Instrument Co. 473 Getty Ave. Paterson 3, N. J.
Vickers Inc. 1596 Oakman Blvd. Detroit, Mich.
Wallace & Tiernan, 1 Main St. Belleville 9, N. J.
Waters Governor Co. 53 Waters Ave, Everett 49, Mass.
Watts Regulator Co. 10 Embankment St. Lawrence, Mass.
Webster Tallmadge & Co Inc. 364 Glenwood Ave. East Orange, N. J.

REGULATORS, SPEED, ELECTRIC MOTOR

Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44, Pa.
Belco Industrial Equip Div Inc. 52 Iowa Ave. Paterson 3, N. J.
Bogue Electric Co. 52 Iowa Ave. Paterson 3, N. J.
Brown Boveri Corp. 19 Rector St. New York 6, N. Y.
Clark Controller Co. 1146 E 152nd St. Cleveland 10, Ohio
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
General Regulator Corp. 165 Broadway, New York 6, N. Y.
General Radio Co. 275 Massachusetts Ave. Cambridge 39, Mass.
Garbar Electric Co Inc. 420 Lexington Ave. New York 17, N. Y.
Ohmite Mfg Co. 4835 W Flournoy St. Chicago 44, Ill.
Servo-Tek Products Co Inc. 4 Godwin Ave. Paterson 1, N. J.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Sterling Electric Motors Inc. 5401 Anaheim-Telegraph Rd. Los Angeles 22, Calif.
Ward Leonard Electric Co. 100 South St. Mount Vernon, N. Y.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30, Pa.

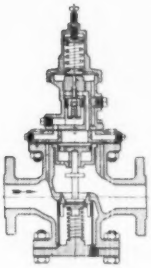
REGULATORS, TEMPERATURE

Atlas Valve Co. 280-84 South St. Newark 5, N. J.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44, Pa.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barber-Colman Co. Rockford, Ill.
Bridgeport Thermostat Div. Robertshaw-Fulton Controls Co. 1225 Connecticut Ave. Bridgeport 1, Conn.
Bristol Co. Waterbury 91, Conn.
Cash A W Valve Mfg Corp. 6616 E Wabash Ave, Decatur, Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis, Mo.
Dunham, C A Co. 400 W Madison St. Chicago 6, Ill.
Edison, Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Fenwal Inc. 240 Pleasant St. Ashland, Mass.
Fischer & Porter Co. 500 County Line Rd. Hatboro, Pa.
Foster Engrg Co. 835 Lehigh Ave. Union, N. J.
Foster Wheeler Corp. 165 Broadway. New York 6, N. Y.
Foxboro Co. 38 Neponset Ave. Foxboro, Mass.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
General Regulator Corp. 165 Broadway, New York 6, N. Y.
H-B Instrument Co. Inc. 2633 Trenton Ave. Philadelphia 25, Pa.
Hagan Corp. 323 Fourth Ave. Hagan Bldg. Pittsburgh 30, Pa.
Hanson-Van Winkle-Munning Co. Church St. Matawan, N. J.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8, Ill.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Keckley, O C, Co. 400 W Madison St. Chicago 6, Ill.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton, Ohio
Leeds & Northrup Co. 4970 Stenton Ave. Phila 44, Pa.
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
Lumenite Electronic Co. 407 S Dearborn St. Chicago 5, Ill.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill.
Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2, Conn.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis-Honeywell Regulator Co. 2753 Fourth Ave S, Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Penn Electric Switch Co. Goshen. Ind.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7, Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14, Ill.
Pyrometer Instrument Co. Bergenfield, N. J
Republic Flow Meters Co. 2240 Diversey Parkway, Chicago 47, Ill.
Ruggles-Klingeman Mfg Co. Foster Court, Salem, Mass
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
Spence Engrg Co Inc. Walden, N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Sterling Inc. 3713 N Holton St. Milwaukee 12, Wis.
Swartwout Co. 18511 Euclid Ave. Cleveland 12, Ohio
Tagliabue, C J Mfg Co. 614 Frelinghuysen Ave. Newark 5, N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1, N. Y.
Ulanet, Geo Co. 415 Market St. Newark 5, N. J.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4, Ill.
Webster Tallmadge & Co Inc. 364 Glenwood Ave. East Orange. New Jersey
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30, Pa.

REGULATORS, VACUUM

Ace Instrument Co Inc. 172 Pacific St. Bklyn 2, N. Y.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago, Ill.
Atlas Valve Co. 280-84 South St. Newark 5, N. J.
Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10, Ohio
Barber-Colman Co. Rockford. Ill.
Bristol Co, Waterbury 91. Conn.
Brooke Engrg Co Inc. 4517 Wayne Ave. Phila 20, Pa.
Climax Controls Div. Black, Sivalls & Bryson Inc. Box 1529, Tulsa 1, Okla.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8, Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis, Mo.
Edison, Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Foster Engrg Co. 835 Lehigh Ave Union, N. J.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.

FOSTER PRESSURE REDUCING REGULATORS



Type 37-G2S Series II

For Steam-Type 37-G2, Series II (Internal Pilot Operated)

Built for pressures up to 1500 lbs. and 900° F total temperature. Accurate regulation assured regardless of variations in initial pressure. Single-seated for dead-end service; pilot and main valve protected by internal strainers from pipe line sediment. Body streamlined to assure free steam flow; main valve construction provides maximum lift to minimize pulsating and wire drawing as well as to assure graduated flow and modulating control.

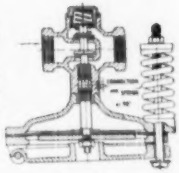
Type	Total Temperature Deg. Fahr.	Initial Pressure	Reduced Pressure	Spring Ranges, Pounds	Sizes, In.	Connections
		Lbs., per Sq. In.				
37-G2C Series II	500	300	½ to 275	½-4 (LP) 3-15 (LP) 5-275†	½- 2	Screwed
37-G2I Series II	500	300		½- 4 (LP) 3-15 (LP) 5-275†	2½-12	Flanged
37-G2S Series II	900	1500	½ to 600	½-4 (LP) 3-15 (LP) 5-600†	½- 2 2½-12	Screwed Flanged

†In Intermediate Ranges.

For Steam Heating Systems—Types J-1 and J-2

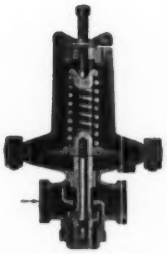
Primarily designed for use on steam heating systems. Types J-1 and J-2 are also used on service where delivery pressure does not exceed 60 lb. Accurate regulation, no stuffing box to cause friction, few moving parts.

Type J-1 is made in sizes 1"—4", single-seated for dead-end service; J-2 is double-seated in all sizes for continuous flow service. Available in sizes from 1"—8" for temperatures to 350° F and initial pressures up to 125 lbs., reduced pressures to 60 lb. Bronze and semi-steel construction as required for pressures and temperatures involved.



Type J-2

For Steam, Air, Liquids, Gases—Type Y (Small Bore, Small Capacity)



Type 39-Y14

Foster Y valves are made in seven types, designed and developed to meet the demand for a series of accurate, yet relatively inexpensive, small seat bore, small capacity valves requiring but little maintenance. They are simple, direct acting, tight seating for dead-end service, and without stuffing boxes. Type Y11 for severe service has renewable seat ring; all others have removable disc.

Because of large diaphragm area in proportion to seat area, average variations in initial pressure have little effect on accuracy of regulations. For pressures up to 3000 pounds maximum, and for reduced pressures from ounces to 250 pounds depending on the type. Smallest size, ¼" (36-Y); largest size 1" (39-Y3, Y11 and 39-Y14). Screwed connections only.

For Water and Air-Type 38-U (Wide Range Service)

Five types available for a wide range of services requiring water and air regulation in power plants, process plants, water works, office buildings, hotels, apartment houses and residences. Built for 160° F total temperature; single-seated for dead-end service; automatically balanced to prevent initial pressure from affecting final pressure; renewable main valve discs; sizes 2½" and larger have renewable seat rings.

Type	Regulation	Initial Pressure	Reduced Pressure	Spring Ranges, Pounds	Sizes, In.	Connections
		Lbs. per Sq. In.				
38-U	Average	300	10-125 10-100	10-100	½- 2 2½- 8	Screwed Flanged
38-U1	Accurate	300	5-80	5-80† 5-40†	½- 2 2½- 6	Screwed Flanged
38-U2	Accurate particularly on widely varying loads	300	5-200 5-80	5-20 (LP) 15-200 (LP) 5-80†	2½- 6 8-24	Flanged Flanged

†In Intermediate Ranges.

Type 38-U

PRESSURE REGULATORS . . . RELIEF AND BACK PRESSURE VALVES . . . CUSHION CHECK VALVE . . . ALTITUDE VALVES . . . FAN ENGINE REGULATORS . . . PUMP GOVERNORS . . . TEMPERATURE REGULATORS . . . FLOAT AND LEVER BALANCED VALVES . . . NON-RETURN VALVES . . . VACUUM REGULATORS OR BREAKERS . . . STRAINERS . . . SIRENS SAFETY VALVES FLOW TUBES

FOSTER ENGINEERING COMPANY AUTOMATIC VALVES ESTABLISHED 1914

FOSTER ENGINEERING COMPANY

835 Lehigh Ave. *Manufacturers of a Complete Line of Automatic Valves* **Union, N. J.**

COPES

Headquarters for . . .

Boiler Feed Water Control . . . Excess or Constant Pressure Control, Steam or Water . . . Liquid Level Control . . . Balanced Valves . . . Desuperheaters . . . Boiler Steam Temperature Control . . . Hi-Low Water Alarms.

Boiler Feed Water Control . . .

Fully-automatic continuous COPES feed means safe, economical boiler operation. Choose from three basic control systems:

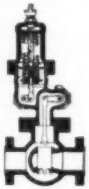
1. **SIMPLE LEVEL CONTROL —one control influence**
2. **FLOWMATIC CONTROL —two control influences**
3. **BALANCED FLOW CONTROL —three control influences**

1 SIMPLE LEVEL CONTROL

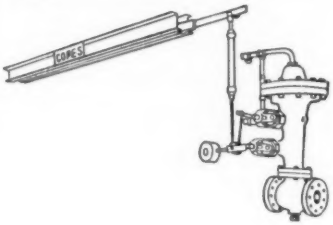
Feeds in response to drum water level changes. For moderate pressures and ratings. Type BI (*Leaflet P-1-D*) is standard. Type OT (*Leaflet P-2-A*) is the adaptation for small boilers.

PUMP GOVERNORS

For excess pressure service in boiler feeding. Special types for motor, or turbine-driven, centrifugal or reciprocating pumps. Master control available, where needed. Each unit designed for accuracy over a long service life under adverse conditions. Easily maintained. *Write for data, outlining your needs.*

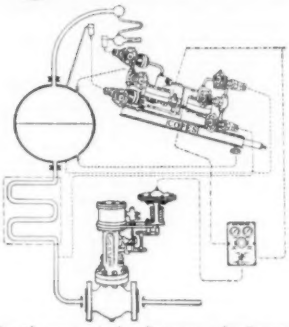


2 COPES FLOWMATIC



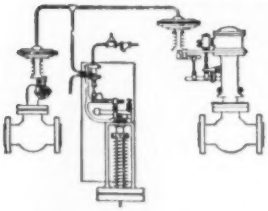
Simplest, most widely used flow-level type feed water regulator; more than 3400 boilers equipped. Feeds according to steam flow and water level to control level closely on fast-steaming generators, on any boilers taking rapid load swings. Easily adjusted and maintained by boiler room personnel. Direct-operated Type D-O, *see Bulletin 429-B.* Relay-operated Type R-O and air-operated Type A-O, *see Bulletin 441.*

3 BALANCED FLOW

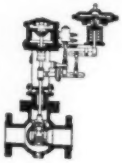


Has three control influences—feed water flow, steam flow and water level. Ideal for the ultra-modern high duty steam generators. Independent of other boiler instruments and controls; will remain on full-automatic when they are out of service for routine servicing. Can control through hydraulic couplings. *Leaflet P-25.*

PRESSURE REDUCING VALVES



Built for jobs too tough for ordinary stock valves. Each is individually designed for your specific needs, with accuracy and dependability guaranteed. Quiet in operation. Direct or relay operation —with master control if desired. Pressure drops up to 2500 psi. Sizes to 14-inch. *Bulletin 477.*

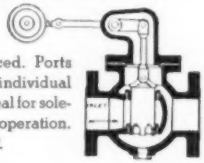


DESUPERHEATERS

As accurate on light flows as on maximum loads. Complete atomization of cooling water over full range of operation, because flow is controlled at point of dispersion, not by any outside valve. Easy maintenance. Complete unit self contained. *Bulletin 405-B.*

BALANCED VALVES

Practically frictionless, closely balanced. Ports designed for individual installation. Ideal for solenoid or float operation. *Leaflet P-3-B.*

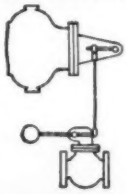


BOILER STEAM TEMPERATURE CONTROL

Holds uniform steam temperature under all load conditions. Sprays water into steam through variable-orifice nozzle between superheater stages, according to outlet steam temperature and rate of flow. Designs for boilers with heat exchangers. *Write for data, outlining your conditions.*

LIQUID LEVEL CONTROLS

For open or closed vessels. Improved float chambers or flange-type floats, with mechanical or fluid connection to COPES balanced valves. Pressures to 400 psig. *Write for details.*



NORTHERN EQUIPMENT CO. • 1301 GROVE DRIVE • ERIE • PA.

Representatives Everywhere

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General Regulator Corp. 165 Broadway, New York 6. N. Y.
Hagan Corp. 323 Fourth Ave. Hagan Bldg. Pittsburgh 30, Pa.
Hammel-Dahl Co. 243 Richmond St. Providence 3. R. I.
Kaye & MacDonald Inc. 11-15 Central Ave. West Orange. N. J.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24. Mass.
Mercoid Corp. 4201 Belmont Ave. Chicago 41. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Natural Gas Equip Inc. 714 Olympic Blvd. Los Angeles 15. Calif.
Norwalk Valve Co. 33 Railroad Ave. South Norwalk. Conn.
Penn Electric Switch Co. Goshen. Ind.
Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila. Pa.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
Republic Flow Meters Co. 2240 Diversey Parkway. Chicago 47. Ill.
Ruggles-Klingemann Mfg Co. Foster St. Salem. Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Spence Engrg Co. Inc. Walden. N. Y.
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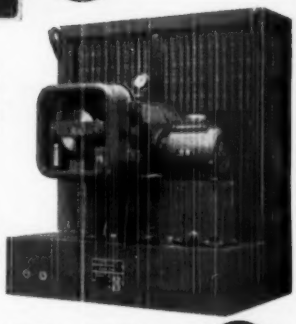

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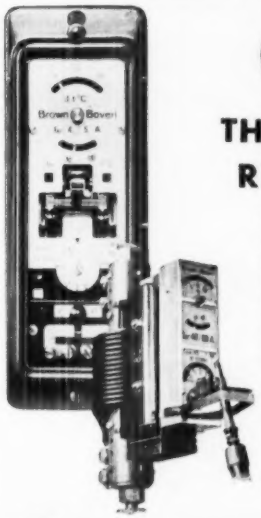

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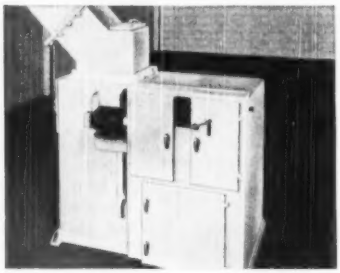

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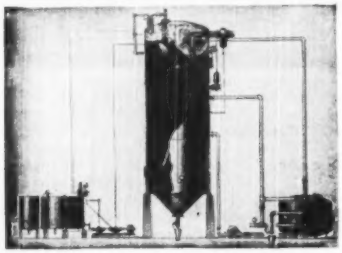

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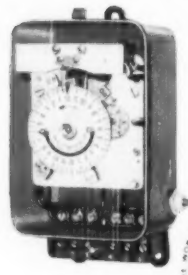

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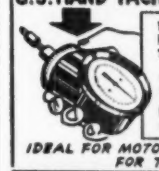
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Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
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Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
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Edison Thomas A. Inc. Instrument Div. West Orange 3, N. J.
Fenwal Inc. 240 Pleasant St. Ashland, Mass.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Klipfel Mfg Co. 1000 Weller Ave. Hamilton, Ohio
Leslie Co. 255 Grant Ave. Lyndhurst, N. J.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44, Pa.
Penn Electric Switch Co. Goshen, Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7, Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14, Ill.
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
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Dole Valve Co. 1913 W Carroll Ave. Chicago 12, Ill.
Edison, Thomas A Inc. Instrument Div. West Orange 3, N. J.
Fenwal Inc. 240 Pleasant St. Ashland, Mass.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Mercoid Corp. 4201 Belmont Ave. Chicago 41, Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
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Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7, Wis.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14, Ill.
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
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Johnson Service Co. 507 E Michigan St. Milwaukee 2, Wis.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S, Minneapolis 8, Minn.
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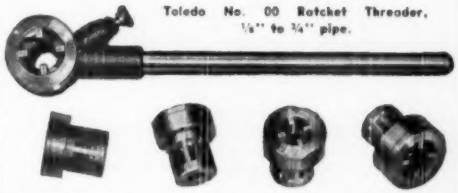

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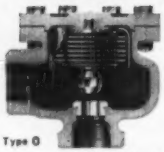

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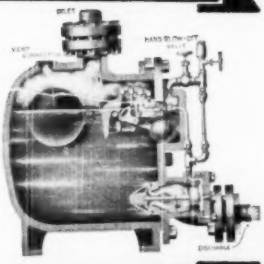
ENORMOUS DRAINAGE CAPACITY—With valve orifices up to 2" diam., they offer unsurpassed drainage capacity. Universally specified for steam purifiers. Also for superheated lines, headers, separators, heaters, etc. Discharge large volumes of water almost instantly. Unaffected by dirt; won't leak even if cooked dry; working parts of stainless steel; non-wire drawing discharge valve. Press., 2 to 650 lbs. CATALOG 250.

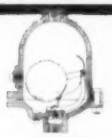


W. H. NICHOLSON & CO.
125 Oregon Street Wilkes-Barre, Pennsylvania.

HOW TO SELECT A TRAP FOR AUTOMATIC DRAINAGE OF COMPRESSED AIR SYSTEMS

Type of Trap	Inverted Bucket	Snap Action	Regular Ball Float
Handles oil	Very well*	Light oil only	No
Handles dirt	Very well	Moderate	No
Air Loss	Small	None	None
Requires Priming	Yes	No	No
Float collapse or leakage	Impossible	Remote	Remote

*For very heavy oil use nothing smaller than No. 213 trap.


No. 71 Snap Action Air Trap

No. 2 Ball Float Trap

Inverted Bucket Trap

WHERE TO USE THEM

Drip Points . . . After Coolers . . . Intercoolers . . . Separators . . . Receivers

Get full details on Armstrong automatic drainage of compressed air lines. Ask for Bulletin 202. ARMSTRONG MACHINE WORKS, 812 Maple St., Three Rivers, Mich.

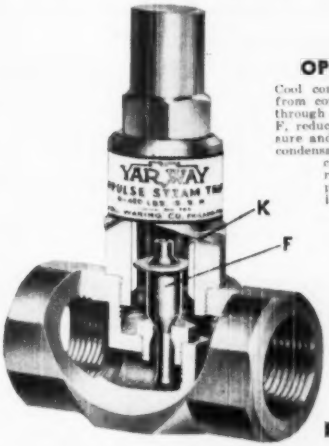
ARMSTRONG MACHINE WORKS
Manufacturers of Air Traps, Steam Traps, Steam Humidifiers and High Side Floats and Purgers for Refrigeration Systems.

YARWAY
IMPULSE STEAM TRAPS

With Yarway Impulse Steam Traps on the job, equipment not only gets hotter, sooner . . . it *stays hot*. That's because when condensate load is heavy, Yarways discharge *continuously* until the lines and jackets are cleared. Then when equipment reaches working temperature the discharge is *intermittent*, keeping it at peak efficiency.

The small size of Yarway traps permits easy installation anywhere. Maintenance is minimum. Yarways have but one moving part, a simple valve . . . no floats, buckets, bellows or diaphragms. Trap body is machined from stainless steel bar stock. Low in cost.

For complete description write for Bulletin T-1739

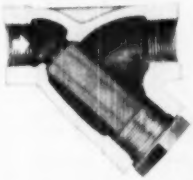


OPERATION

Cool condensate, flowing from control chamber K through center of valve F, reduces chamber pressure and valve lifts. Hot condensate vaporizes in control chamber raising chamber pressure and closing valve.

OVER 650,000 PURCHASED

YARWAY STRAINERS



Yarway Fine-Screen Strainers offer three improved features for better screening and cheaper maintenance. (1) Monel woven wire screen gives maximum screening with minimum restrictions of flow. (2) Screen cap has machined face and gasket for tight joint or easy removal; straight threads guide screen into place when re-assembling. (3) Body is cadmium plated to prevent rusting.

Ten standard sizes from ¼" to 3". Iron body for pressures up to 250 lb.; steel body for pressures up to 600 lb. Write for Bulletin S-203.

See other Yarway Advertisements on pages 92, 96, 130, 139

YARNALL-WARING COMPANY
100 MERMAID AVE. PHILA 18, PA

Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.
Illinois Engrg Co, Racine Ave & 20th Place, Chicago 8, Ill.
McAlear Mfg Co, 1901 S Western Ave, Chicago 8, Ill.
Marsh, Jas P, Corp, Skokie, Ill.
Nicholson, W H & Co, 125 Oregon St, Wilkes-Barre 1, Pa.
Sarco Co Inc, Empire State Bldg, New York 1, N. Y.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Strong, Carlisle & Hammond Co, 1392 W 3rd St, Cleveland 13, Ohio
Trane Co, LaCrosse, Wis.
Webster, Warren & Co, 17th & Federal Sts, Camden, N. J.

TRAPS, RETURN

Barnes & Jones Inc, 128 Brookside Ave, Boston 30, Mass.
Cochrane Corp, 17th St & Allegheny Ave, Phila 32, Pa.
Cryer Trap & Valve Co Inc, 366 Madison Ave, New York 17, N. Y.
Dunham, C A Co, 400 W Madison St, Chicago 6, Ill.
Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.
Illinois Engrg Co, Racine Ave & 20th Place, Chicago 8, Ill.
International Combustion Corp, 436 Pearl St, New York, N. Y.
Johnson Corp, 865 Wood St, Three Rivers, Mich.
Leavitt Machine Co, 10 E River St, Orange, Mass.
Marsh, Jas P, Corp, Skokie, Ill.
Morehead Mfg Co, 2455 W Warren Ave, Detroit 8, Mich.
O'Brien Steam Spec Co, Inc, 312 Heffernan Bldg, Syracuse 2, N. Y
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Sarco Co Inc, Empire State Bldg, New York 1, N. Y.
Sterling Engrg & Mfg Corp, 110 Business St, Hyde Park 36, Boston, Mass.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Templeton Bros, 169 Reservation Rd, Hyde Park 36, Mass.
Trane Co, LaCrosse, Wis.
Webster, Warren & Co, 17th & Federal Sts, Camden, N. J.

TRAPS, STEAM

American District Steam Co, Bryant St, North Tonawanda, N. Y.
Anderson, V D, Co, 1935 W 96th St, Cleveland 2, Ohio
Armstrong Machine Works, 905 Maple St, Three Rivers, Mich.
Barnes & Jones Inc, 128 Brookside Ave, Boston 30, Mass.
Cashin, W D Co, 69 "A" St, Boston 27, Mass.
Clark Mfg Co, 1830 E 38th St, Cleveland 14, Ohio
Climax Controls Div, Black, Sivalls & Bryson Inc, Box 1529, Tulsa 1, Okla.
Cochrane Corp, 17th St & Allegheny Ave, Phila 32, Pa.
Coe Mfg Co, Bank St, Painesville, Ohio
Crane Co, 836 S Michigan Ave, Chicago 5, Ill.
Cryer Trap & Valve Co Inc, 366 Madison Ave, N. Y. 17, N. Y.
Davis Engrg Corp, 1064 E Grand St, Elizabeth 4, N. J.
Davis Regulator Co, 2540 S Washtenaw Ave, Chicago 6, Ill.
Dunham, C A Co, 400 W Madison St, Chicago 6, Ill.
Fisher Governor Co, Marshalltown, Iowa
Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.
Johnson Corp, 865 Wood St, Three Rivers, Mich.
Kaye & MacDonald Inc, 11-15 Central Ave, West Orange, N. J.
Kieley & Mueller Inc, 2013 43rd St, North Bergen, N. J.
Leavitt Machine Co, 10 E River St, Orange, Mass.
McAlear Co, 1901 S Western Ave, Chicago 8, Ill.
Marsh, Jas P, Corp, Skokie, Ill.
Morehead Mfg Co, 2455 W Warren Ave, Detroit 8, Mich.
Nicholson, W H, & Co, 125 Oregon St, Wilkes-Barre 1, Pa.
O'Brien Steam Spec Co, Inc, 312 Heffernan Bldg, Syracuse 2, N. Y.
Owens, Henry & Co, Inc, 51 Washington Ave, Cranston 7, R. I.
Powers Regulator Co, 2771-D Greenview Ave, Chicago 14, Ill.
Rockwell, W S Co, 200 Eliot St, Fairfield, Conn.
Sarco Co Inc, Empire State Bldg, New York 1, N. Y.
Schaub, Fred H Engrg Co, Inc, 2110 S Marshall Blvd, Chicago, Ill.
Squires, C E Co, 18502 Syracuse Ave, Cleveland 10, Ohio
Sterling Engrg & Mfg Corp, 110 Business St, Hyde Park 36, Mass.
Sterling Inc, 3713 N Holton St, Milwaukee 12, Wis.
Stickle Steam Specialty Co, 2265 Valley Ave, Indianapolis 1, Ind.
Strong, Carlisle & Hammond Co, 1392 W 3rd St, Cleveland 13, Ohio
Templeton Bros, 169 Reservation Rd, Hyde Park 36, Mass.
Trane Co, LaCrosse, Wis.
Webster, Warren & Co, 17th & Federal Sts, Camden, N. J.
Williams Gauge Co, 2055 Pennsylvania Ave, Pittsburgh 12, Pa.
Wright-Austin Co, 3245 Wight St, Detroit 7, Mich.
Yarnall-Waring Co, Chestnut Hill, Philadelphia 18, Pa.

TRAPS, VACUUM

Armstrong Machine Works, 905 Maple St, Three Rivers, Mich.
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Barnes & Jones Inc, 128 Brookside Ave, Boston 30, Mass.
Cashin, W D Co, 69 "A" St, Boston 27, Mass.
Clark Mfg Co, 1830 E 38th St, Cleveland 14, Ohio
Cryer Trap & Valve Co, 366 Madison Ave, New York 17, N. Y.
Dunham, C A Co, 400 W Madison St, Chicago 6, Ill.
Grinnell Co Inc, 260 W Exchange St, Providence 1, R. I.
Illinois Engrg Co, Racine Ave & 20th Place, Chicago 8, Ill.
McAlear Mfg Co, 1901 S Western Ave, Chicago 8, Ill.
Marsh, Jas P, Corp, Skokie, Ill.
Morehead Mfg Co, 2455 W Warren Ave, Detroit 8, Mich.
Sterling Engrg & Mfg Corp, 110 Business St, Boston 36, Mass.
Strong, Carlisle & Hammond Co, 1392 W 3rd St, Cleveland 13, Ohio
Trane Co, LaCrosse, Wis.
Templeton Bros, 169 Reservation Rd, Hyde Park 36, Mass.
Webster, Warren & Co, 17th & Federal Sts, Camden, N. J.
Wright-Austin Co, 3245 Wight St, Detroit 7, Mich.

TROLLEYS, TRACKS, AND TRAMWAYS, OVERHEAD

Bergen Point Iron Wks, Foot of W 5th St, Bayonne, N. J.
Chisholm-Moore Hoist Corp, Fremont Ave, Tonawanda, N. Y.
Colorado Fuel & Iron Corp, Continental Oil Bldg, Denver 1, Colo.
Ford Chain Block Div, American Chain & Cable Co Inc, 2nd & Diamond Sts, Phila, Pa.
Gifford-Wood Co, Hudson, N. Y.
Hendrick Mfg Co, P O Box 497, Carbondale, Pa.
Lamson Corp, Lamson St, Syracuse 1, N. Y.
Link-Belt Co, 2410 W 18th St, Chicago 8, Ill.
Shaw-Box Div, Manning, Maxwell & Moore Inc, Muskegon, Mich.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.
Wright Mfg Div, American Chain & Cable Co Inc, Princess & Charles Sts, Bridgeport, Conn.

TUBES, BOILER, SUPERHEATER

Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Babcock & Wilcox Tube Co, Beaver Falls, Pa.
Badenhausen, J Phillips, South Ave & Reading RR, Wyncote, Pa.
Bethlehem Steel Co, Bethlehem, Pa.
Boiler Tube Co of America, McKees Rocks, Pa.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Globe Steel Tubes Co, 3839 W Burnham St, Milwaukee 4, Wis.
Jones & Laughlin Steel Corp, 3rd Ave & Ross St, Pittsburgh 30, Pa.
McClave, R B, Engrg Co, 149 Broad St Station Bldg, Phila 3, Pa.
Murray, A B Co, Inc, 608 Green Lane, Elizabeth, N. J.
National Supply Co, Grant Bldg, Pittsburgh 30, Pa.
National Tube Co, U S Steel Sub, Frick Bldg, Pittsburgh 19, Pa.
Pittsburgh Steel Co, Grant Bldg, Pittsburgh 30, Pa.
Steel & Tubes Div, Republic Steel Corp, 218 E 131st St, Cleveland
Timken Roller Bearing Co, 1835 Deuber Ave, SW, Canton 6, Ohio
Tubular Service Co, 32 Broadway, New York, N. Y.
Youngstown Sheet & Tube Co, Youngstown 1, Ohio

TUBES, CONDENSER

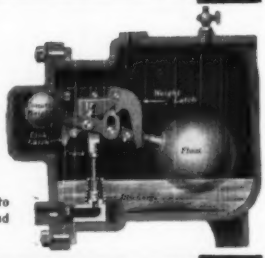
Aluminum Co of America, 1987 Gulf Bldg, Pittsburgh, Pa.
American Brass Co, 25 Broadway, New York 4, N. Y.
Ampco Metal Inc, 1745 S 38th St, Milwaukee 4, Wis.
Babcock & Wilcox Co, 85 Liberty St, New York 6, N. Y.
Babcock & Wilcox Tube Co, Beaver Falls, Pa.
Boiler Tube Co of America, McKees Rocks, Pa.
Bridgeport Brass Co, 30 Grand St, Bridgeport 2, Conn.
Carpenter Steel Co, P O Box 116, Roselle, N. J.
Chase Brass & Copper Co, 236 Grand St, Waterbury 20, Conn.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Globe Steel Tubes Co, 3839 W Burnham St, Milwaukee 4, Wis.
International Nickel Co Inc, 67 Wall St, New York 5, N. Y.
Murray, A B Co, Inc, 608 Green Lane, Elizabeth, N. J.
National Tube Co, U S Steel Sub, Frick Bldg, Pittsburgh 19, Pa.
Pittsburgh Steel Co, Grant Bldg, Pittsburgh 30, Pa.
Revere Copper and Brass Inc, 230 Park Ave, New York 17, N. Y.
Scovill Mfg Co, 99 Mill St, Waterbury 91, Conn.
Steel & Tubes Div, Republic Steel Corp, 218 E 131st St, Cleveland 8, Ohio

NICHOLSON

WEIGHT-OPERATED
STEAM TRAPS

Automatic Intermittent Action

Advanced features for modern power plants: won't leak even if cooked dry, preventing live steam loss; non-wire drawing; unaffected by dirt, pulsation, etc.; rugged; of stainless steel where it counts; easily connected. 3 types for press. to 200, 650 and 1500 lbs. Also for air and gasoline lines. CATALOG 250.



W. H. NICHOLSON & CO.
125 Oregon Street Wilkes-Barre, Pennsylvania.

Squires
STEAM and AIR TRAPS

• This rugged trap with new improved, non-corrosive bucket adds greater life to a trap recognized for long dependable operation. The larger capacity of Squires Traps—the simplicity of operation—the few working parts coupled with fewer discharges, results in less wear on parts—longer service—less maintenance. The ease of access to valve and seat: Merely unbolt and lift cap without breaking pipe connections; assures continuous low cost service.

Write for complete information—Catalog 100.

50 Years of Dependability

THE C. E. SQUIRES COMPANY
18502 SYRACUSE AVE. CLEVELAND 10, OHIO

ARMSTRONG MACHINE WORKS

812 Maple Street, Three Rivers, Mich.

Sales and Service Representatives in Leading Industrial Centers
Traps carried in stock throughout the world . . . can be ordered through any jobber

All Armstrong Products Listed Are Sold on a Basis of Satisfaction or Your Money Back

ARMSTRONG TRAPS

FOR PRESSURES TO 250 PSI

Armstrong invented the inverted bucket trap in 1911. In the traps shown here, the original design advantages of self-scrubbing action and freedom from air binding have been incorporated into a frictionless all stainless steel mechanism. Available in two body styles for neatest possible hookups: (1) side-inlet, side-outlet traps — pioneered by Armstrong — in which cap and mechanism lift out as a unit without disturbing pipe connections; and (2) bottom-inlet, top-outlet traps. Bodies and caps are cast semi-steel, close grained and of high tensile strength. Bucket and lever mechanism are of stainless steel. Valve and seat are of special chrome steel alloy, heat-treated, ground and lapped. Materials used in mechanisms are identical to those furnished in traps for temperatures to 900° F and pressures to 1500 psi. (*Complete data in Catalog H.*)

FOR PRESSURES TO 1500 PSI

Since 1929 Armstrong has been building inverted bucket high pressure traps with forged steel bodies and caps and stainless steel mechanisms especially resistant to the corrosive action of high temperature condensate and steam. These traps are used in important power plants all over the world and have been accepted as standard in the majority of high pressure plants in the United States. Available with screwed or flanged connections, they are used for high pressure or high temperature duty and for low or medium pressure service where fire and explosion hazards make iron fittings undesirable. (*Complete data in Catalog H.*)

FOR EXTREME CONDENSATE LOADS

Armstrong Compound Traps are designed for draining steam purifiers, separators, flash tanks, continuous blowdown systems and all other steam using equipment producing very large volumes of condensate. An inverted bucket mechanism controls a piston-operated valve with a much larger orifice than would be practical in a standard trap. *Ask for Catalog H.*

FOR DRAINING LIQUID FROM GAS OR VENTING GAS FROM LIQUID

No. 71 Snap-Action Ball Float Air Trap recommended for ordinary service . . . no priming, no air loss. Where oil and dirt conditions are severe, use inverted bucket trap. No. 21 is low cost ball float. No. 22, 23, 24 are compound lever ball float. *Ask for Bulletin 202.*

STEAM HUMIDIFIERS

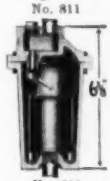
Complete automatic units introduce dry steam into atmosphere to maintain desired relative humidity within close limits. Electric or air operated. Simple, economical, dependable. Big capacity. No dripping, no extra load on heating system. Easy to install like a unit heater. *Ask for Bulletin 1771.*

REFRIGERANT GAS PURGERS

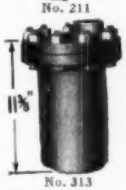
Automatically remove air and other non-condensables from refrigerating systems with almost no loss of refrigerant. Forged steel body. Corrosion-resistant stainless mechanism. *Bulletin 192.*

advertised in this issue, see advertisers' index, pages 222-223

No. 811



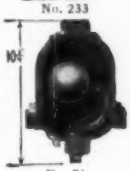
No. 211



No. 313

No. 3211 — a low-priced forged steel trap for pressures to 250 psi. Ideal for "all-steel" installations

No. 233



No. 71

No. 370

Trap Size	Pipe Size Inches	Max. psi	Capacity at Max psi Lbs./hr	List Price
(Side-Inlet, Side-Outlet)				
800	½ or ¾	125	680	$ 7.00
811	½ or ¾	250	760	10.00
812	½ or ¾	250	1300	16.00
813	½ or ¾	250	3500	22.00
(Bottom-Inlet, Top-Outlet)				
211	¼	250	760	9.25
212	½ or ¾	250	1300	15.00
213	½ or ¾	250	3500	20.75
214	1	250	5700	29.00
215	1 or 1¼	250	7000	38.00
216	1½ or 2	250	19,000	55.00
(Forged Carbon Steel)				
3211	½	450	760	14.00
312	½ or ¾	600	2200	35.00
313	½ or ¾	600	2450	56.00
315	1 or 1¼	600	5600	100.00
316	1½ or 2	600	14,000	200.00
(Forged Moly Steel)				
413	½ or ¾	900	2750	75.00
415	1 or 1¼	900	4400	120.00
416	1½ or 2	900	12,000	225.00
(Forged Chrome Moly Steel)				
515	1 or 1¼	1500	5400	325.00
(Cast Semi-Steel Compound Traps)				
233	1	250	26,500	159.00
235	2	250	73,500	209.50
237	3	250	160,000	250.00
239	6	50	330,000	400.00
(Forged Steel Compound Traps)				
333	1	600	37,000	279.00
335	2	600	105,000	359.50
337	3	600	240,000	525.00
(Air Traps)				
21	½ or ¾	125	800	11.00
71	¾ or 1	250	1300	30.00
71-315	1 or 1¼	1000	800	100.00
22	½ or ¾	250	650	24.75
23	1 or 1¼	250	1500	45.00
24	1½ or 2	250	4500	67.00

(Steam Humidifiers)

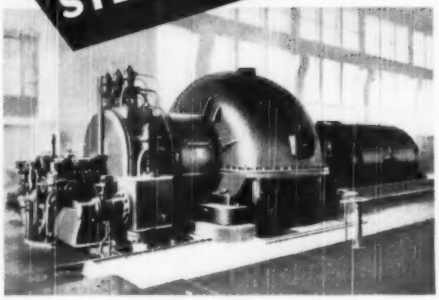
Type	Operation	Cap Lbs. Steam/Hr at 10 Psi	Steam Dispersal	List Price*
C-2	Electric	60	Fan	120.00
VC-2	Electric	60	Venturi	102.00
MC-2	Manual	60	Venturi	72.50
C-3	Electric	126	Fan	214.25
CK-4	Electric	610	Air Stream	325.50
A-12	Air	60	Jet or Venturi	200.00
AK-14	Air	610	Air Stream	375.00

* 110V, 60 cycle.

(Refrigerant Gas Purgers)

Model	Refrigerants	Max. psi	Net Wt	List Price
370	Ammonia Freon, etc.	300	100 lbs.	$200.00
371	CO_2	1500	228 lbs.	350.00

BROWN BOVERI STEAM TURBINES



Straight Condensing, Back Pressure and Extraction types, including generators and exciters—for all steam conditions and capacities.

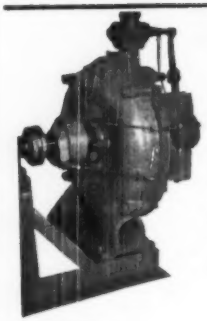
Gas Turbines for power generation, mechanical drives, ship and locomotive service.

BROWN BOVERI

BROWN BOVERI CORP.

19 Rector St. • New York 6, N. Y.

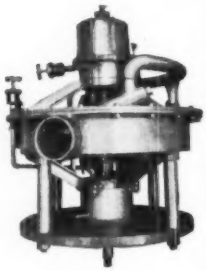
Progressive Engineers — Skilled Craftsmen — For Over 50 Years



SIMPLE—
STURDY—
DEPENDABLE—

Wing Steam Turbines have been a dependable source of power in industrial and marine applications for over a third of a century. In the operation of fans, blowers, pumps and other auxiliary drive equipment, their economical performance and their ability to stand up under adverse conditions are outstanding characteristics.

FEATURES:
CAPACITIES—up to 150 h.p.
SPEEDS—up to 4,000 r.p.m.
Capable of Exhausting against HIGH BACK PRESSURES
SHAFTS—Horizontal or vertical
ROTATION—Clockwise or counter-clockwise
LUBRICATION — Wing Filtered Oil Lubricating System or Grease
GOVERNOR—Overspeed trip and Speed Regulating
OIL-FREE EXHAUST STEAM may be used for heating or process work.



Write for Bulletin SW-50

50 Vreeland Mills Road, Linden, N. J.

L. J. Wing Mfg. Co.

Timken Roller Bearing Co. 1835 Deuber Ave. SW. Canton 6. Ohio
Tubular Service Co. 32 Broadway. New York. N. Y.
Wheeler, C H. Mfg Co. Lehigh & Sedgley Aves. Phila. 32. Pa.
Wolverine Tube Div. 1411 Central Ave. Detroit 9. Mich.

TUBES, FINNED

Brown Fintube Co. Elyria. Ohio
Carpenter Steel Co, P O Box 116 Roselle. N. J.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16. N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Frick Co. W Main St. Waynesboro. Pa.
Griscom-Russell Co. 285 Madison Ave. New York 17. N. Y.
Murray, A B Co. Inc. 608 Green Lane. Elizabeth. N. J.
Schutte & Koerting Co. 12 & Thompson St. Phila 22. Pa.
Tilco-Fin Div. David E Kennedy Inc. 58 Second Ave. Brooklyn 15. N. Y.
Trane Co. LaCrosse. Wis.
Wolverine Tube Div. 1411 Central Ave. Detroit 9. Mich.
Young Radiator Co. 709 S Marquette St. Racine. Wis.

TUBES, PITOT

Bailey Meter Co. 1050 Ivanhoe Rd. Cleveland 10. Ohio
Dwyer, F W. Mfg Co. 317 S Western Ave. Chicago. Ill.
Ellison Draft Gage Co. 214 W Kinzie St. Chicago 10. Ill.
Madden, P E & Co. 352 W Walton St. Chicago 10. Ill.

TUBING, FLEXIBLE METAL

American Brass Co. 25 Broadway. New York 4. N. Y.
American Metal Hose Br. American Brass Co. 698 S Main St. Waterbury 20. Conn.
Atlantic Metal Hose Co. 123 W 64th St. New York 23. N. Y.
Carpenter Steel Co. P O Box 116. Roselle. N. J.
Chicago Metal Hose Corp. 1311 S Third Ave. Maywood. Ill.
Eclipse-Pioneer Div. Bendix Aviation Corp. Teterboro. N. J.
Kirk & Blum Mfg Co 2875 Spring Grove Ave. Cincinnati 25. Ohio
Mulconroy Co. 54th & Jefferson St. Phila 31. Pa.
Packless Metal Products Corp. 31 Winthrop Ave. New Rochelle. N. Y.
Pennsylvania Flexible Metallic Tubing Co. 72nd & Powers Lane. Phila 42. Pa.
Revere Copper and Brass Inc. 230 Park Ave. New York 17. N. Y.
Seamlex Co. Inc. 41-23 24th St. Long Island City 1. N. Y.
Titeflex Inc. 500 Frelinghuysen Ave. Newark 5. N. J.
Zallea Bros. 801 Locust St. Wilmington 99. Del.

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Anchor Packing Co. 401 N Broad St. Phila 8. Pa.
Chesterton, A W Co. 6 Ashland St. Everett 49. Mass.
Corning Glass Works. Corning. N. Y.
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Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1. Wis.
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Clark Bros Co. Inc. Olean. N. Y.
DeLaval Steam Turbine Co. Trenton 2. N. J.
Elliott Co. Jeannette. Pa.
General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Lima-Hamilton Corp. Hamilton. Ohio
Westinghouse Electric Corp. Braddock Ave. East Pittsburgh. Pa.

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Leffel. James & Co. 426 East St. Springfield. Ohio
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DeLaval Steam Turbine Co. Trenton 2. N. J.
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General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
Hendy, Joshua. Iron Wks. Sunnyvale. Calif.
Murray Iron Wks Co. 1106 Washington St. Burlington. Iowa
Terry Steam Turbine Co. P O Box 1200. Hartford 1. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Whiton Machine Co. 190 Howard St. New London. Conn.
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General Electric Co. Apparatus Dept. Schenectady 5. N. Y.
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Terry Steam Turbine Co. P O Box 1200. Hartford 1. Conn.
Westinghouse Electric Corp. P O Box 868. Pittsburgh 30. Pa.
Whiton Machine Co. 190 Howard St. New London. Conn.
Wing. L J. Mfg Co. Linden. N. J.
Worthington Pump & Machy Corp. Harrison. N. J.

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Carling Turbine Blower Co. 25 St John's Rd. Worcester 3. Mass.
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General Blower Co. 8608 Ferriss Ave. Morton Grove. Ill.
Ingersoll-Rand Co. 11 Broadway. New York 4. N. Y.
North America Mfg Co. 4455 E 71st St. Cleveland. Ohio
Roots-Connersville Blower Corp. 900 W Mount St. Connersville. Ind.
Spencer Turbine Co. 486 New Park Ave. Hartford 6. Conn.
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Steel Products Corp. 52 Vanderbilt Ave. New York 17, N. Y.
Stockham Valves & Fittings, 4000 10th Ave. Birmingham, Ala.
Thornhill-Craver Co Inc. 1111 Lockwood Dr. Houston 1, Texas
Walworth Co. 60 E 42nd St. New York 17, N. Y.
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R-S Products Corp. 4530 Germantown Ave. Phila 44, Pa.
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Climax Controls Div. Black, Sivalls & Bryson Inc. Box 1529. Tulsa 1, Okla.
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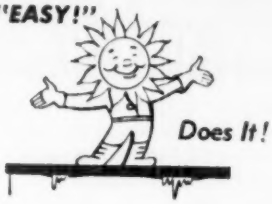
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8, Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2, Mo.



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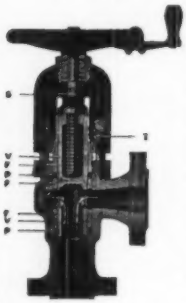
YARWAY BLOW-OFF VALVES

Used singly or in tandem in more than 15,000 plants in 67 different industries. Recommended by leading steam plant designers and builders of steam generating equipment.

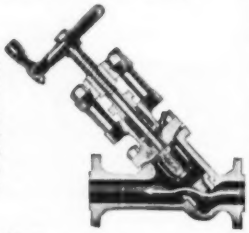


Seatless Type

Made in several styles for working pressures up to 1500 lbs. Angle and straightway.

OPERATION: After valve has been closed, shoulder S on plunger V contacts upper follower gland F, forcing it down into body and compressing packing P above and below port, making an absolutely tight valve. Yoke tension springs T maintain continuous compression on packing train. Alemite lubrication of plunger and stem.

Send for celluloid working model and Bulletins B-424 and B-433.



Hard-Seat Type

Made in several styles for working pressures from 400 to 2500 lbs. Angle and straightway (shown). Stellited seat and disk. A worthy companion to the Yarway Seatless Valve, and frequently used in Tandem with the Seatless Valve for higher pressures.

Tandems

Fig. 1

Fig. 1. Yarway Type "B" Seatless Tandem Valve with balanced sliding plunger. For pressures to 400 lbs.

Fig. 2. Yarway Type "C" Seatless Tandem for pressures to 600 lbs.

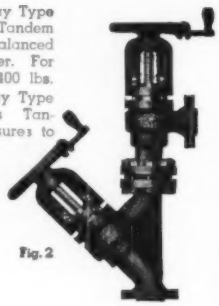


Fig. 2

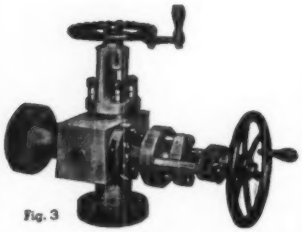


Fig. 3

Fig. 3. Yarway Unit Tandem Valve in which hard seat valve and seatless valve are mounted together in one-piece forged steel body. Pressures 600 to 2,500 lbs.

Write for Bulletins B-424 and B-433.

See other Yarway Advertisements on pages 92, 96, 125, 139

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Williams, D T Valve Co. 2854 Spring Grove Ave. Cincinnati 25, Ohio
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Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Farris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Fisher Governor Co. Marshalltown. Iowa
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Goodall Rubber Co. Whitehead Rd. Trenton 4. N. J.
Grinnell Co Inc. 260 W Exchange St. Providence 1. R. I.
Hagan Corp. 323 Fourth Ave. Hagan Bldg. Pittsburgh 30. Pa.
Hammel-Dahl Co. 243 Richmond St. Providence 3. R. I.
Henry Valve Co. 3215 North Ave. Melrose Park. Ill.
Hills-McCanna Co. 2369 Nelson St. Chicago 18. Ill.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
Leslie Co. 255 Grant Ave. Lyndhurst. N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Marsh. Jas P. Corp. Skokie. Ill.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24. Mass.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15. Calif.
North America Mfg Co. 4455 E 71st St. Cleveland. Ohio
Northern Equipment Co. 1945 Grove Drive. Erie. Pa.
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Paul Valve Corp. 683 Third Ave. New York 17. N. Y.
Pennsylvania Indust Instr Co. 3116 N 17th St. Phila. Pa.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7. Wis.
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
R-S Products Corp. 4530 Germantown Ave. Phila 44. Pa.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22. Pa.
Spence Engrg Co Inc. Walden. N. Y.
Staples & Pfeiffer. 528 Bryant St. San Francisco 7. Calif.
Swartwout Co. 18511 Euclid Ave. Cleveland 12. Ohio
Taglialue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Taylor Instrument Cos. 95 Ames St. Rochester 1. N. Y.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Waters Governor Co. 53 Waters Ave. Everett 49. Mass.
Watts Regulator Co. 10 Embankment St. Lawrence. Mass.
York Corp. York. Pa.

VALVES, FLOAT

Alco Valve Co. 865 Kingsland Ave. St. Louis 5. Mo.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Atlas Valve Co. 280-84 South St. Newark 5. N. J.
Black. Sivalls & Bryson Inc. Power & Light Bldg. Kansas City 6. Mo.
Caldwell. W E Co. 1948 S Brook St. Louisville 8. Ky.
Climax Controls Div. Black. Sivalls & Bryson Inc. Box 1529. Tulsa 1. Okla.
Cochrane Corp. 17th St & Allegheny Ave. Phila 32. Pa.
Coyne & Delany. 832 Kent Ave. Brooklyn. N. Y.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2. Mo.
Detroit Lubricator Co. 5900 Trumbull Ave. Detroit 8. Mich.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Fisher Governor Co. Marshalltown. Iowa
Foster Engrg Co. 109-117 Monroe St. Newark 1. N. J.
Frick Co. W Main St. Waynesboro. Pa.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Illinois Engrg Co. Racine Ave & 20th Place. Chicago 8. Ill.
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
McDonnell & Miller. Inc. 3500 N Spaulding Ave. Chicago 18. Ill
Madden. P E & Co. 352 W Walton St. Chicago 10. Ill.
Marsh. Jas P. Corp. Skokie. Ill.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10. Wis.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
Northern Equipment Co. 1945 Grove Drive. Erie. Pa.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Spence Engrg Co Inc. Walden. N. Y.
Stets Co. 1440 Broadway. New York 18. N. Y.

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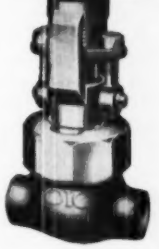
OIC Forged Steel Valves —Gates, Globes, Angles, Checks — meet the need for valves for high pressure-temperature service. For steam or water, and oil or oil vapor.



OIC *sets the pace in valves* with a long line of Gates, Globes, Angles, Checks, in bronze, iron, cast steel, forged steel and special alloys.

New Forged Steel Catalog on Request

THE OHIO INJECTOR COMPANY
108 PINE STREET • WADSWORTH, OHIO

CAST STEEL • FORGED STEEL • IRON • BRONZE

O-450-38B

Waters Governor Co. 53 Waters Ave. Everett 49. Mass.
Watts Regulator Co. 10 Embankment St. Lawrence. Mass.
Whittington Pump & Engrg Corp. 1126 Prospect St. Indianapolis 3. Ind.

VALVES, FLUSHING

Coyne & Delany. 832 Kent Ave. Brooklyn. N. Y.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7. Ill.
McDonnell & Miller. Inc. 3500 N Spaulding Ave. Chicago 18. Ill.
Sexauer. J A. Mfg Co Inc. 2503 3rd Ave. New York 51. N. Y.
Sloan Valve Co. 4300 W Lake St. Chicago 24. Ill.

VALVES, FOOT

Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Clow. James B & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Cochrane Corp. 17th & Allegheny Ave. Phila. 32. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Durabla Mfg Co. 114 Liberty St. New York 6. N. Y.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Ludlow Valve Mfg Co Inc. Troy. N. Y.
New Haven Vibrator Co. 137 Chestnut St. New Haven 7. Conn.
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Preferred Utilities Mfg Corp. 1860 Broadway. New York 23. N. Y.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Williams Gauge Co. 2055 Pennsylvania Ave. Pittsburgh 12. Pa.
Zurn. J A. Mfg Co. 1801 Pittsburgh Ave. Erie. Pa.

VALVES, FORGED STEEL

Bacharach Industrial Instrument Co. 7000 Bennett St. Pittsburgh. Pa.
Baldwin Locomotive Works. Philadelphia 42. Pa.
Barksdale Valves. 4905 Santa Fe Ave. Los Angeles 58. Calif.
Catawissa Valve & Fittings Co. 206 Mill St. Catawissa. Pa.
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Chiksan Co. 330 N Pomona Ave. Brea. Calif.
Clark Mfg Co. 1830 E 38th St. Cleveland 14. Ohio
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Darling Valve & Mfg Co. Foot Walnut St. Williamsport. Pa.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston. N. J.
Fisher Governor Co. Marshalltown. Iowa
Flori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.
Henry Valve Co. 3215 North Ave. Melrose Park. Ill.
Jerguson Gage & Valve Co. 87 Fellsway. Somerville. Mass.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Mason-Neilan Regulator Co. 1186 Adams St. Boston 24. Mass.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
R-S Products Corp. 4530 Germantown Ave. Phila 44. Pa.
Sivyer Steel Casting Co. 1675 S 43rd St. Milwaukee 14. Wis.
Strong, Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.
Wilson-Snyder Div. Oil Well Supply Co. Braddock. Pa.

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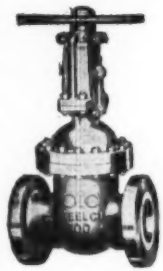

235 Page Catalog on Request

THE OHIO INJECTOR COMPANY

108 PINE STREET • WADSWORTH, OHIO

CAST STEEL • FORGED STEEL • IRON • BRONZE

O-450-58A

VALVES, GATE

Alloy Steel Products Co. 1300 W Elizabeth Ave. Linden. N. J.
Ampco Metal Inc. 1745 S 38th St. Milwaukee 4. Wis.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44. Pa.
Baldwin Locomotive Works Philadelphia 42. Pa.
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
Clow. James B. & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Cooper Alloy Foundry Co. Bloy St & Ramsay Ave. Hillside. N. J.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Darling Valve & Mfg Co. Foot Walnut St. Williamsport. Pa.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7. Wis.
Flori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.
Grinnell Co Inc. 260 W Exchange St. Providence 1. R. I.
Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
Jeffrey Mfg Co. 932-99 N Fourth St. Columbus 10. Ohio
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Koppers Co. Inc. 200 Scott St. Baltimore. Md.
Ludlow Valve Mfg Co. Inc. Foot of Adams St. Troy. N. Y.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McNally Pittsburg Mfg Corp. Pittsburg. Kans.
M & H Valves & Fittings Co. P O Box 909. Anniston. Ala.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Mueller Co. 512 W Cerro Gordo St. Decatur 70. Ill.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34. Pa.
Ohio Brass Co. 380 N Main St. Mansfield 7. Ohio
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-P & C Div. American Chain & Cable Co. Inc. Reading. Pa.
Rockwell. W S Co. 200 Eliot St. Fairfield. Conn.
Shaw. Benjamin F Co. 2nd & Lombard Sts. Wilmington 99. Dela.
Sivyer Steel Casting Co. 1675 S 43rd St. Milwaukee 14. Wis.
Stephens-Adamson Mfg Co. 5 Ridgeway. Aurora. Ill.
Stockham Valves & Fittings. 4000 10th Ave. Birmingham. Ala
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Williams. D T Valve Co. 2854 Spring Grove Ave. Cincinnati 25. Ohio
Worthington Pump & Machy Corp. Harrison. N. J.
York Corp. York. Pa.

VALVES, GLOBE

Alloy Steel Products Co. 1300 W Elizabeth Ave. Linden. N. J.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44. Pa.
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20. Conn.
Cooper Alloy Foundry Co. Bloy St & Reading Ave. Hillside. N. J.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Detroit Lubricator Co. 5900 Trumbull Ave. Detroit 8. Mich.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Flori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.
Frick Co. W Main St. Waynesboro. Pa.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh. Pa.
Grinnell Co Inc. 260 W Exchange St. Providence 1. R. I.
Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Jerguson Gage & Valve Co. 87 Fellsway. Somerville. Mass.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
Kunkle Valve Co. 119-121 S Clinton St. Fort Wayne 2. Ind.
Lunkenheimer Co. P O Box 360 Annex Station. Cincinnati 14. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Marsh. Jas P. Corp. Skokie. Ill.
National Carbon Co Inc. 30 E 42nd St. New York 17. N. Y.
Ohio Brass Co. 380 N Main St. Mansfield 7. Ohio
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-P & C Div. American Chain & Cable Co. Inc. Reading. Pa.
Shaw. Benjamin F Co. 2nd & Lombard St. Wilmington 99. Dela.
Sivyer Steel Casting Co. 1675 S 42nd St. Milwaukee 14. Wis.
Stockham Valves & Fittings. 4000 10th Ave. Birmingham. Ala.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.
Williams. D T Valve Co. 2854 Spring Grove Ave. Cincinnati 25. Ohio
York Corp. York. Pa.

VALVES, INDICATOR

Alloy Steel Products Co. 1300 W Elizabeth Ave. Linden. N. J.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44. Pa.
Bacharach Industrial Instrument Co. 7000 Bennett St. Pittsburgh
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Clow. James B & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Coen Co. 40 Boardman Place. San Francisco 3. Calif.
Cooke Engrg Co. 1737 Howard Ave. Chicago 26. Ill.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Darling Valve & Mfg Co. Foot Walnut St. Williamsport. Pa.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Hauck Mfg Co. 136 E 10th St. Brooklyn 18. N. Y.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Lonergan. J E Co. 209 Race St. Phila 6. Pa.
Ludlow Valve Mfg Co Inc. Foot of Adams St. Troy. N. Y.
Lunkenheimer Co. P O Box 360 Annex Station. Cincinnati 14. Ohio
M & H Valve & Fittings Co. P O Box 909. Anniston. Ala.
Madden. P E & Co. 352 W Walton St. Chicago 10. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
National Airoil Burner Co. 1276 E Sedgley Ave. Philadelphia 34. Pa.
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-P & C Div. American Chain & Cable Co. Inc. Reading. Pa.

Strong, Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Tejax Engineering Corp. P O Box 1134. Providence 3. R. I.
Walworth Co. 60 E 42nd St. New York 17. N. Y.

VALVES, MIXING, STEAM, WATER

Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44. Pa.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4. Tenn.
Hagan Corp. 323 Fourth Ave. Hagan Blvd. Pittsburgh 30. Pa.
Hammel-Dahl Co. 243 Richmond St. Providence 3. R. I.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton. Ohio
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Minneapolis - Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8. Minn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14. Ill.
R-S Products Corp. 4530 Germantown Ave. Phila 44. Pa.
Sarco Co Inc. Empire State Bldg. New York 1. N. Y.
Symmons Engrg Co. 791 Tremont St. Boston 18. Mass.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.

VALVES, MOTOR OPERATED

Andale Co. 1604 Arch St. Philadelphia. Pa.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago. Ill.
Automatic Temperature Control Co. 5212 Pulaski Ave. Phila 44. Pa.
Baldwin Locomotive Works. Philadelphia 42. Pa.
Barber-Colman Co. Rockford. Ill.
Bristol Co. Waterbury 91. Conn.
Brooke Engrg Co Inc. 4517 Wayne Ave. Phila 20. Pa.
Brown Instrument Div. Minneapolis-Honeywell Aegulator Co. 4490 Wayne Ave. Phila 44. Pa.
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Climax Controls Div. Black, Sivalls & Bryson Inc. Box 1529. Tulsa 1. Okla.
Clow, James B. & Sons. 201-299 N Talman Ave. Chicago 12. Ill.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1. Wis.
Darling Valve & Mfg Co. Foot Walnut St. Williamsport. Pa.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Farris Engrg Corp. 400 Commercial Ave. Palisades Park. N. J.
Fischer & Porter Co. 500 County Line Rd. Hatboro. Pa.
Foxboro Co. 38 Neponset Ave. Foxboro. Mass.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Hills-McCanna Co. 2369 Nelson St. Chicago 18. Ill.
Homestead Valve Mfg Co. P O Box 210. Coraopolis. Pa.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Johnson Service Co. 507 E Michigan St. Milwaukee 2. Wis.
Keckley. O C. Co. 400 W Madison St. Chicago 6. Ill.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Ludlow Valve Mfg Co Inc. Troy. N. Y.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
McNally Pittsburg Mfg Corp. Pittsburg. Kans.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Minneapolis - Honeywell Regulator Co. Industrial Div. Wayne & Roberts Aves. Phila 44. Pa.
Natural Gas Equip Inc. 714 W Olympic Blvd. Los Angeles 15. Calif.
North America Mfg Co. 4455 E 71st St. Cleveland. Ohio
Northern Equipment Co. 1945 Grove Drive. Erie. Pa.
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12. Ohio
Paul Valve Corp. 683 Third Ave. New York 17. N. Y.
Philadelphia Gear Wks Inc. G St & Erie Ave. Phila 34. Pa.
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Pratt. Henry. Co. 2222 S Halsted. Chicago 8. Ill.
R-P & C Div. American Chain & Cable Co. Inc. Reading. Pa.
R-S Products Corp. 4530 Germantown Ave. Phila 44. Pa.
Republic Flow Meters Co. 2240 Diversey Pkwy. Chicago 47. Ill.
Rockwell. W S Co. 200 Eliot St. Fairfield. Conn.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Schade Valve & Mfg Co. 2527 N Bodine St. Phila 33. Pa.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22. Pa.
Tagliabue. C J Mfg Co. 614 Frelinghuysen Ave. Newark 5. N. J.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4. Ill.
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Webster Tallmadge & Co Inc. 364 Glenwood Ave. East Orange. N. J.
Webster. Warren & Co. 1658 Federal St. Camden. N. J.

VALVES, NEEDLE

Alloy Steel Products Co. 1300 W Elizabeth Ave. Linden. N. J.
Associated Valve & Engrg Co. 1150 W Marquette Rd. Chicago 21. Ill.
Baldwin Locomotive Works. Philadelphia 42. Pa.
Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Cooper Alloy Foundry Co. Bloy St & Ramsay Ave. Hillside. N. J.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Darling Valve & Mfg Co. Foot Walnut St. Williamsport. Pa.
Dockson Corp. 3839 Wabash Ave. Detroit 8. Mich.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12. Ill.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Hammel-Dahl Co. 243 Richmond St. Providence 3. R. I.
Helicoid Div. American Chain & Cable Co Inc. Bridgeport 7. Conn.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7. Ill.
Jarecki Mfg Co. 1345 W 12th St. Erie. Pa.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Lonergan. J E Co. 209 Race St. Phila 6. Pa.
Lunkenheimer Co. P O Box 360. Annex Station. Cincinnati 14. Ohio
McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
Nugent. Wm W. & Co. Inc. 402 N Hermitage Ave. Chicago 22. Ill.
Ohio Brass Co. 380 N Main St. Mansfield 7. Ohio
Ohio Injector Co. 108 Pine St. Wadsworth. Ohio
Oil-Rite Corp. 3478 S 13th St. Milwaukee 15. Wis.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Stockham Valves & Fittings. 4000 10th Ave. Birmingham. Ala.
Strong. Carlisle & Hammond Co. 1392 W 3rd St. Cleveland 13. Ohio
Thornhill-Craver Co Inc. 1111 Lockwood Dr. Houston 1. Texas
Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.
Williams. D T Valve Co. 2854 Spring Grove Ave. Cincinnati 25. Ohio

VALVES, NON-RETURN

Chapman Valve Mfg Co. 203 Hampshire St. Indian Orchard. Mass.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8. Ill.
Edward Valves Inc. 1200 W 145th St. East Chicago. Ind.
Fisher Governor Co. Marshalltown. Iowa
Flori Pipe Co. 601 E Red Bud Ave. St Louis. Mo.
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22. Pa.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Kieley & Mueller Inc. 2013 43rd St. North Bergen. N. J.
Lunkenheimer Co. P O Box 360 Annex Station. Cincinnati 14. Ohio
Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-S Products Corp. 4530 Germantown Ave. Phila 44. Pa.
Ruggles-Klingemann Mfg Co. Foster Court. Salem. Mass.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22. Pa.
Walworth Co. 60 E 42nd St. New York 17. N. Y.

VALVES, PLUG

American Car & Foundry Co. 30 Church St. N. Y. 7. N. Y.
Ampco Metal, Inc. 1745 S 38th St. Milwaukee 4. Wis.
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Condenser Service & Engrg Co. Inc. 95 River St. Hoboken. N. J.
Crane Co. 836 S Michigan Ave. Chicago 5. Ill.
Faber Engrg Co. Amber & Westmoreland Sts. Phila 34. Pa.
Fairbanks Co. 393 Lafayette St. New York 3. N. Y.
Homestead Valve Mfg Co. P O Box 210. Coraopolis. Pa.
Hunt. Rodney Machine Co. 13 River St. Orange. Mass.
Imperial Brass Mfg Co. 1200 W Harrison St. Chicago 7. Ill.
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. N. Y. 16. N. Y.
Klingerit Inc. 16 Hudson St. New York 13. N. Y.
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McAlear Mfg Co. 1901 S Western Ave. Chicago 8. Ill.
McNally Pittsburg Mfg Corp. Pittsburg. Kansas
Manning. Maxwell & Moore. Inc. 11 Elias St. Bridgeport 2. Conn.
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Mueller Co. 512 W Cerro Gordo St. Decatur 70. Ill.
National Airoil Burner Co. 1276 E Sedgley Ave. Phila 34. Pa.
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Pittsburgh Piping & Equip Co. 10 43rd St. Pittsburgh 1. Pa.
Pittsburgh Valve & Fittings Corp. Barberton. Ohio
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
R-P & C Div. American Chain & Cable Co. Inc. Reading. Pa.
Shaw. Benjamin F Co. 2nd & Lombard Sts. Wilmington 99. Dela.
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Vogt. Henry. Machine Co. 1000 W Ormsby St. Louisville 10. Ky.
Walworth Co. 60 E 42nd St. New York 17. N. Y.
Watson Stillman Co. 108 Aldene Rd. Roselle. N. J.
Webster Tallmadge & Co Inc. 364 Glenwood Ave. East Orange. N. J.
Welsbach Corp. 1500 Walnut St. Philadelphia 2. Pa.
Williams. D T Valve Co. 2854 Spring Grove Ave. Cincinnati 25. Ohio

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Barksdale Valves. 4905 Santa Fe Ave. Los Angeles 58. Calif.
Birch Mfg Co. 1521-23 Sedgwick St. Chicago 10. Ill.
Dick. R & J. Co Inc. 28 Sade St. Passaic. N. J.
Durabla Mfg Co. 114 Liberty St. New York 6. N. Y.
Farris Engrg Co. 400 Commercial Ave. Palisades Park. N. J.
Fisher Governor Co. Marshalltown. Iowa
Foster Engrg Co. 835 Lehigh Ave. Union. N. J.
Garlock Packing Co. 402 E Main St. Palmyra. N. Y.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1. Calif.
Hill Pump Valve Co. 2728 Elston Ave. Chicago 47. Ill.
Hollow Center Packing Co. 6523 Euclid Ave. Cleveland 3. Ohio
Jenkins Bros. 100 Park Ave. New York 17. N. Y.
Kennedy Valve Mfg Co. 1060 E Water St. Elmira. N. Y.
Marlo Co. Inc. 434 Broadway. New York 13. N. Y.
Powell. Wm. Co. 2525 Spring Grove Ave. Cincinnati 22. Ohio
Quaker Rubber Corp. Comly St & State Rd. Phila 24. Pa.
R-S Products Corp. 4530 Germantown Ave. Phila 44. Pa.
Sims Pump Valve Co Inc. 145 Hudson St. New York 13. N. Y.
United States Rubber Co. 1230 6th Ave. New York 20. N. Y.
Voss. J H H. Co Inc. 785 E 144th St. New York 54. N. Y.
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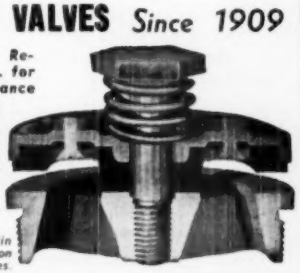
End pump troubles and restore old pumps to original efficiency. Because of the exclusive Hill design no matter in what position the valve rotates *constant contact* is maintained over the full bearing surface. Efficient, economical, accurate, durable.



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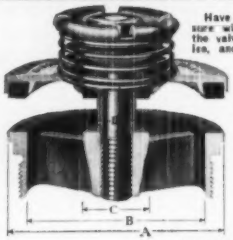

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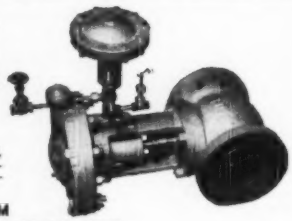

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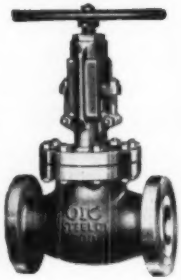

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Mercon Regulator Co. 2357 N 29th St. Milwaukee 10, Wis.
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Northern Equipment Co. 1945 Grove Drive, Erie, Pa.
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Pennsylvania Industrial Instr Co. 3116 N 17th St. Phila, Pa.
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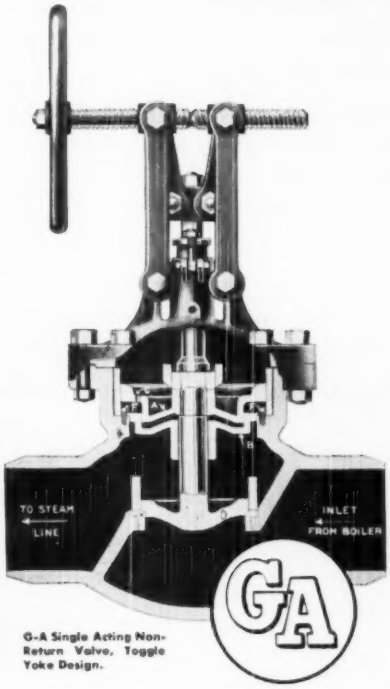

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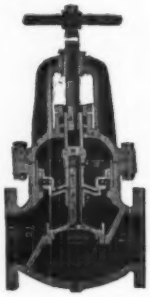

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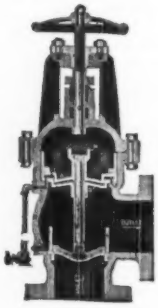

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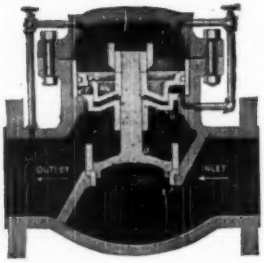

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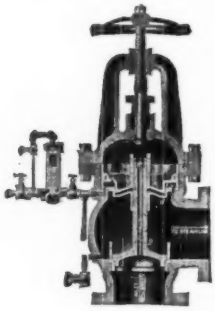

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Kunkle Valve Co. 119 S Clinton St. Fort Wayne 2, Ind.
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Norwalk Valve Co. 33 Railroad Ave. South Norwalk, Conn.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12, Ohio
Powell, Wm. Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Rockwell, W S Co. 200 Eliot St. Fairfield, Conn.
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Eddington Metal Specialty Co. P O Box K, Eddington, Pa.
Edward Valves Inc. 1200 W 145th St. East Chicago, Ind.
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Farris Engrg Co. 400 Commercial Ave. Palisades Park, N. J.
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Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22, Pa.
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Hoffman Specialty Co. 1001 York St. Indianapolis 7, Ind.
Inferno Co. 115 Ricou St. Shreveport, La.
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Keckley, O C, Co. 400 W Madison St. Chicago 6, Ill.
Kieley & Mueller Inc. 2013 43rd St. North Bergen, N. J.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton, Ohio
Kunkle Valve Co. 119 S Clinton St. Fort Wayne 2, Ind.
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Penn Electric Switch Co. Goshen, Ind.
Powell, Wm. Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Rockwood Sprinkler Co. 38 Harlow St. Worcester 5, Mass.
Schade Valve Mfg Co. 2527 N Bodine St. Phila 33, Pa.
Schutte & Koerting Co. 12th & Thompson Sts. Phila 22, Pa.
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Watson Stillman Co. 108 Aldene Rd. Roselle, N. J.
Watts Regulator Co. 10 Embankment St. Lawrence, Mass.
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Farris Engrg Co. 400 Commercial Ave. Palisades Park, N. J.
Foster Engrg Co. 835 Lehigh Ave. Union, N. J.
Frick Co. W Main St. Waynesboro, Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Henry Valve Co. 3215 North Ave. Melrose Park, Ill.
Inferno Co. 115 Ricou St. Shreveport, La.
Jarecki Mfg Co. 1345 W 12th St. Erie, Pa.
Keckley, O C, Co. 400 W Madison St. Chicago 6, Ill.
Koppers Co. Inc. 200 Scott St. Baltimore, Md.
Kunkle Valve Co. 119 S Clinton St. Fort Wayne 2, Ind.
Lonergan, J E Co. 211 Race St. Phila 6, Pa.
Lunkenheimer Co. P O Box 360. Annex Station, Cincinnati 14, Ohio
Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2, Conn.
North America Mfg Co. 4455 E 71st St. Cleveland, Ohio
Powell, Wm. Co. 2525 Spring Grove Ave. Cincinnati 22, Ohio
Ruggles-Klingeman Mfg Co. 4 Foster St. Salem, Mass.
Standard Valve Mfg Co. 817 Albany St. Boston 19, Mass.
Staples & Pfeiffer, 528 Bryant St. San Francisco 7, Calif.
Symmons Engrg Co. 791 Tremont St. Boston 18, Mass.
Vapor Heating Corp. 80 E Jackson Blvd. Chicago 4, Ill.
Vickers Inc. 1596 Oakman Blvd. Detroit, Mich.
Welsbach Corp. 1500 Walnut St. Philadelphia 2, Pa.

VALVES, SOLENOID

Alco Valve Co. 865 Kingsland Ave. St Louis 5, Mo.
Automatic Switch Co. 391 Lakeside Ave. Orange, N. J.
Barber-Colman Co. Rockford, Ill.
Barksdale Valves. 4905 Santa Fe Ave. Los Angeles 58, Calif.
Central Auto Sprinkler Co. 4th & Cannon Ave. Lansdale, Pa.
Crouse Hinds Co. Wolf & Seventh N. Syracuse 1, N. Y.
Cutler-Hammer Inc. 294 N 12th St. Milwaukee 1, Wis.
Davis Regulator Co. 2540 S Washtenaw Ave. Chicago 8, Ill.
Detroit Lubricator Co. 5900 Trumbull Ave. Detroit 8, Mich.
Electrol Inc. 85 Grand Ave. Kingston, N. Y.
Frick Co. W Main St. Waynesboro, Pa.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22, Pa.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17, N. Y.
Hauck Mfg Co. 136 10th St. Brooklyn 15, N. Y.
Henry Valve Co. 3215 North Ave. Melrose Park, Ill.
Johnson Corp. 865 Wood St. Three Rivers, Mich.
Keckley, O C, Co. 400 W Madison St. Chicago 6, Ill.
Locke Regulator Co. Walters & Osborne St. Salem, Mass.
McDonnell & Miller, Inc. 3500 N Spaulding Ave. Chicago 18, Ill.
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Marsh, James P. Corp. Skokie, Ill.
Minneapolis Honeywell Regulator Co. 2753 Fourth Ave S. Minneapolis 8, Minn.
National Airoil Burner Co. 1276 E Sedgely Ave. Philadelphia 34, Pa.
Nicholson, W H, & Co. 125 Oregon St. Wilkes-Barre, Pa.
North America Mfg Co. 4455 E 71st St. Cleveland, Ohio
Northern Equipment Co. 1945 Grove Drive, Erie, Pa.
Parker Appliance Co. 17325 Euclid Ave. Cleveland 12, Ohio
Paul Valve Corp. 683 Third Ave. New York 17, N. Y.
Penn Electric Switch Co. Goshen, Ind.
Perfex Corp. 500 W Oklahoma Ave. Milwaukee 7, Wis.
R-S Products Corp. 4530 Germantown Ave. Phila 44, Pa.
Rockwell, W S, Co. 200 Eliot St. Fairfield, Conn.
Ruggles-Klingemann Mfg Co. Foster Court, Salem, Mass.
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
Square D Co. 4041 N Richards St. Milwaukee 12, Wis.
Supreme Electric Products Corp. 194 Vassar St. Rochester 7, N. Y.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

Swartwout PRESSURE REDUCING VALVES and DESUPERHEATERS

Type C and G Valves
Bulletin S-22-C

V-1, V-2 and V10 Valves
Bulletins S-198, S-199, S-208-A

Desuperheaters
Bulletin S-21-E

Swartwout valves are of the automatic diaphragm operated type, either direct acting or actuated by compressed air through master controls.

Spring-opening C or spring-closing G series, in double or single-seated designs, are for medium pressure and medium-pressure drops. Furnished with quick-opening poppet or gradual-opening parabolic port restrictions.

V series valves are for high pressures and high-pressure drops. Disc and seat contours form nozzle-shaped passages that minimize turbulence. Single-seated V-1 and double-seated V-2 are spring-closing valves. Spring-opening V10 valve with exclusive scroll inlet is especially designed to handle *flashing condensate.*

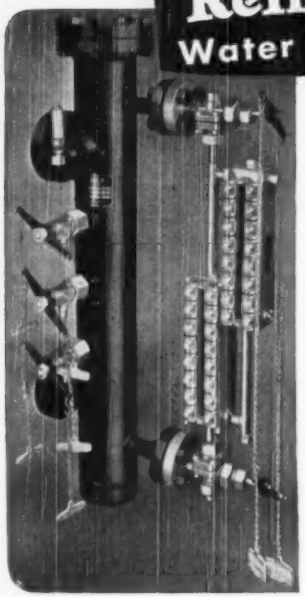
Swartwout carburetor, steam and mechanical atomizing desuperheaters thoroughly atomize water to assure complete evaporation. Steam and mechanical atomizing types are ideal in lines where no pressure drop is permissible.

If you have a problem in reducing or desuperheating, write for special bulletins or contact your nearest Swartwout representative. The Swartwout Company, 18511 Euclid Ave., Cleveland 12, Ohio.

A-3033

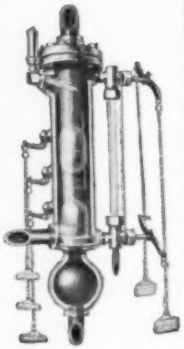
Swartwout
POWER PLANT EQUIPMENT

Reliance Water Columns



for better water level supervision on all types of boilers

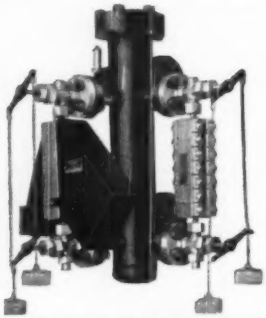
The original Alarm Water Column

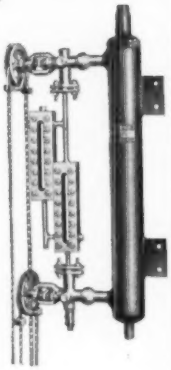


Columns for all working steam pressures

•

With alarms, to 900 psi
Without alarms, to 3000 psi





Also makers of EYE-HYE Remote Reading Gage, Gage Valves, Gage Cocks, Gage Illumination Equipment, Gage Inserts and Electric Liquid Level Alarms.

The Reliance Gauge Column Company
5902 CARNEGIE AVENUE • CLEVELAND 3, OHIO
Representatives in All Principal Cities

Reliance
BOILER SAFETY DEVICES SINCE 1884

VALVES, THERMOSTATIC

Atlas Valve Co. 280-84 South St. Newark 5, N. J.
Bristol Co. Waterbury 91, Conn.
Defender Instrument & Regulator Co. 815 Clark Ave. St Louis 2, Mo.
Dole Valve Co. 1913 W Carroll Ave. Chicago 12, Ill.
Farris Engrg Corp. 400 Commercial Ave. Palisades Park, N. J.
Fulton Sylphon Div Robertshaw-Fulton Controls Co. Knoxville 4, Tenn.
General Controls Co. Box 3517 Grand Central Sta. Glendale 1, Calif.
Illinois Engrg Co. Racine Ave & 20th Place, Chicago 8, Ill.
Klipfel Valves Inc. 1000 Weller Ave. Hamilton, Ohio
Leslie Co. 255 Grant Ave. Lyndhurst, N. J.
McAlear Mfg Co. 1901 S Western Ave. Chicago 8, Ill.
Manning, Maxwell & Moore, Inc. 11 Elias St. Bridgeport 2, Conn.
Marsh, Jas P, Corp. Skokie, Ill.
Minneapolis Honeywell Regulator Co. 2753 Fourth Ave S, Minneapolis 8, Minn.
Powers Regulator Co. 2771-D Greenview Ave. Chicago 14, Ill.
Ruggles-Klingemann Mfg Co. Foster Court, Salem, Mass.
Sarco Co Inc. Empire State Bldg. New York 1, N. Y.
Spence Engrg Co Inc. Walden, N. Y.
Sterling Inc. 3713 N Holton St, Milwaukee 12, Wis.
Symmons Engrg Co. 791 Tremont St. Boston 18, Mass.
Watts Regulator Co. 10 Embankment St. Lawrence, Mass.

VENTILATING SYSTEMS, VENTILATORS

Allen, E H, Co. 22 Dorrance St. Boston 29, Mass.
American Blower Corp. Detroit 32, Mich.
Arex Co. 333 N Michigan Ave. Chicago 1, Ill.
Burt Mfg Co. 47 E South St. Akron 11, Ohio
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Chelsea Fans & Blower Co. Inc. 1206 Grove St. Irvington 11, N. J.
DeBothezat Fans Div. American Machine & Metals Inc. East Moline, Ill.
Diehl Mfg Co. 1142 Pinderne Ave. Somerville, N. J.
Graybar Electric Co Inc. 420 Lexington Ave. N. Y. 17, N. Y.
Hartzell Propeller Fan Co. Downing St. Piqua, Ohio
Ilg Electric Ventilating Co. 2850 N Crawford Ave. Chicago 41, Ill.
International Engrg Inc. P O Box 973, Dayton 1, Ohio
Johnson Fan & Blower Corp. 1319 W Lake St. Chicago 7, Ill.
Kirk & Blum Mfg Co. 2874 Spring Grove Ave. Cincinnati 25, Ohio
Moore Co. Marceline, Mo.
Nelson, Herman Corp. 1824 3rd Ave. Moline, Ill.
Robbins & Myers Inc. 1345 Lagonda Ave. Springfield, Ohio
South Bend Air Products, Inc. 322 E Colfax Ave. South Bend, 22, Ind.
South Bend Electric Co. 322 E Colfax Ave. South Bend 22, Ind.
Sturtevant, Div. Westinghouse Elec Corp. Hyde Park, Boston, Mass.
Swartwout Co. 18511 Euclid Ave. Cleveland 12, Ohio
Trane Co. LaCrosse, Wis.
Voss Machine Works. 242 E 122nd St. New York, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Wing, L J, Mfg Co. Linden, N. J.

VIBRATORS, BIN, CHUTE AND HOPPER

Beaumont Birch Co. 1505 Race St. Phila 2, Pa.
Cleco Div. Reed Roller Bit Co. P O Box 2119, Houston 1, Texas
Jeffrey Mfg Co. 932-99 N Fourth St. Columbus 16, Ohio
New Haven Vibrator Co. 137 Chestnut St. New Haven 7, Conn.
Syntron Co. 492 Lexington, Homer City, Pa.

VOLTMETERS, INDICATING

Assembly Products Inc. Chagrin Falls, Ohio
Associated Research Inc. 3758 W Belmont Ave. Chicago 3, Ill.
Burlington Instrument Co. 203 N 3rd St. Burlington, Iowa
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17, N. Y.
J-B-T Instruments Inc. 441 Chapel St. New Haven 8, Conn.
Hanson-Van Winkle-Munning Co. Church St. Matawan, N. J.
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Marion Electrical Instrument Co. Stark St Gate, Manchester, N. H.
National Technical Labs. 820 Mission St. South Pasadena, Calif.
Roller-Smith, 1756 W Market St. Bethlehem, Pa.
Sticht, Herman H Co. 27 Park Pl. New York 7, N. Y.
U S Gauge Div. American Machine & Metals Inc. Sellersville, Pa.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.
Weston Electrical Instrument Corp. 614 Frelinghuysen Ave. Newark 5, N. J.
Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

VOLTMETERS, RECORDING

Bristol Co. Waterbury 91, Conn.
Esterline-Angus Co 1201 Main St. Indianapolis 6, Ind.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave. N Y C 17, N. Y.
Hanson-Van Winkle-Munning Co. Church St. Matawan, N. J.
Manning, Maxwell & Moore Inc. 11 Elias St. Bridgeport 2, Conn.
Sticht, Herman H Co. 27 Park Pl. New York 7, N. Y.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.

GraybaR has everything for VENTILATION

Whatever your ventilation need, you can get the right equipment – made by Ilg – via Graybar.

For any other electrical need as well, you're sure of the right equipment and quick action when you call us. Thousands of electrical items are immediately available. Prompt delivery from local stocks often saves time.

Ventilation equipment and supplies are a few items of the more than 100,000 electrical products distributed by Graybar nationally.

IN OVER 100 PRINCIPAL CITIES

Wheelco Instruments Co. 847 W Harrison St. Chicago 7, Ill.

WALLS, BOILER-FURNACE, AIR-COOLED

Allen-Sherman-Hoff Co. 227 S 15th St. Phila 2, Pa.
American Arch Co Inc. 60 E 42nd St. New York 17, N. Y.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10, Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2, Mich.
Carborundum Co. Perth Amboy, N. J.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22, Ill.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Detrick, M H Co. 111 W Washington St. Chicago 2, Ill.
Green, A P, Fire Brick Co. Mexico, Mo.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. New York 16, N. Y.
Laclede Christy Co. Ambassador Bldg. St Louis, Mo.
Murray Iron Works Co. 1106 Washington St. Burlington, Iowa
Norton Co. 1 New Bond St. Worcester 6, Mass.
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14, Ill.
Quigley Co Inc. 527 Fifth Ave. New York 17, N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8, Ill.
Reintjes, Geo P. Co. 2517 Jefferson St. Kansas City, Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19, Pa.
Waite Gravity Lock Refractories, 111 Westminster St. Providence 3, R. I.

WALLS, BOILER-FURNACE, PLAIN

Bernitz Furnace Appliance Co. 89 Broad St. Boston 10, Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2, Mich.
Carborundum Co. Perth Amboy, N. J.
Carolina Refractories Co. Hartsville, S. C.
Chicago Fire Brick Co. 1467 Elston Ave. Chicago 22, Ill.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Crottr Mfg Co. 133-15 35th Ave. Flushing, N. Y.
Detrick M H Co. 111 W Washington St. Chicago 2, Ill.
Green, A P, Fire Brick Co. Mexico, Mo.
Laclede Christy Co. Ambassador Bldg. St Louis, Mo.
Mexico Refractories Co. Better Refractories Bldg. Mexico, Mo.
Murray Iron Works Co. 1106 Washington St. Burlington, Iowa
Norton Co. 1 New Bond St. Worcester 6, Mass.
Palmer Mfg Corp. 21st Ave at Fillmore St. Phoenix, Ariz.
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14, Ill.
Quigley Co Inc. 527 Fifth Ave. New York 17, N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8, Ill.
Refractories Co of North Carolina, P O Box 773, Charlotte, N. C.
Reintjes, Geo P. Co. 2517 Jefferson St. Kansas City, Mo.
Rust Engrg Co. Rust Bldg. Pittsburgh 19, Pa.
Waite Gravity Lock Refractories, 111 Westminster St. Providence 3, R. I.

WALLS, BOILER-FURNACE, WATER-COOLED

Babcock & Wilcox Co. 85 Liberty St. New York 6, N. Y.
Badenhausen, John Phillip. South Ave & Reading R R. Wyncote, Pa.
Bernitz Furnace Appliance Co. 89 Broad St. Boston 10, Mass.
Bigelow Liptak Corp. 2842 W Grand Blvd. Detroit 2, Mich.
Combustion Engrg-Superheater Inc. 200 Madison Ave. N. Y. 16, N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor, Delaware
Erie City Iron Wks. 1422 East Ave. Erie, Pa.
Foster Wheeler Corp. 165 Broadway, New York 6, N. Y.
E Keeler Co. 238 West St. Williamsport 3, Pa.
Kennedy Van Saun Mfg & Engrg Corp. 2 Park Ave. New York 16, N. Y.
Laclede Christy Co. Ambassador Bldg. St Louis, Mo.
Mexico Refractories Co. Better Refractories Bldg. Mexico, Mo.
Murray Iron Works Co. 1106 Washington St. Burlington, Iowa
Plibrico Jointless Firebrick Co. 1800 Kingsbury St. Chicago 14, Ill.
Power Piping Div. Blaw-Knox Co. 1525 Pennsylvania Ave. Pittsburgh 12, Pa.
Power Plant Efficiency Co. P O Box 592. Indianapolis 4, Ind.
Quigley Co Inc. 527 Fifth Ave. New York 17, N. Y.
Ramtite Co. 2549 W 18th St. Chicago 8, Ill.
Reintjes, Geo P. Co. 2517 Jefferson St. Kansas City, Mo.
Riley Stoker Corp. 9 Neponset St. Worcester, Mass.
Rust Engrg Co. Rust Bldg. Pittsburgh 19, Pa.
Springfield Boiler Co. 1901 E Capitol Ave. Springfield, Ill.
Waite Gravity Lock Refractories, 111 Westminster St. Providence 3, R. I.
Wickes Boiler Co. 512 N Water St. Saginaw, Mich.

WASHERS, AIR

Air & Refrigeration Corp. 475 Fifth Ave. New York 17, N. Y.
American Blower Corp. Detroit 32, Mich.
Bahnson Co. 1001 S Marshall St. Winston-Salem, N. C.
Buffalo Forge Co. 488 Broadway, Buffalo 5, N. Y.
Campbell Heating, E K Co. 1809 Manchester Ave. Kansas City, Mo.
Carrier Corp. 300 S Geddes St. Syracuse 1, N. Y.
Clarage Fan Co. North & Porter Sts. Kalamazoo 16, Mich.
Fluor Corp. Ltd. 2500 S Atlantic Blvd. Los Angeles 22, Calif.
Murray, D J, Mfg Co. Wausau, Wis.
Peabody Engrg Corp. 580 Fifth Ave. New York, N. Y.
Quaker Rubber Corp. Comly St & State Rd. Phila 24, Pa.
Ross J O Engrg Corp. 350 Madison Ave. New York 17, N. Y.
Spray Engrg Co. 114 Central St. Somerville 45, Mass.
Sturtevant Div. Westinghouse Elec Corp. Hyde Park, Boston 36, Mass.
Surface Combustion Corp. 2375 Dorr St. Toledo 1, Ohio
Trane Co. LaCrosse, Wis.
U S Air Conditioning Corp. Como Ave. SE at 33rd St. Minneapolis, Minn.
York Corp. York, Pa.
Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa.

WATER COLUMNS

Condenser Service & Engrg Co. 95 River St. Hoboken, N. J.
Ernst Water Column & Gage Co. 250 S Livingston Ave. Livingston, N. J.
Golden-Anderson Valve Specialty Co. Keenan Bldg. Pittsburgh 22, Pa.
Huyette, Paul B. Co Inc. 401 N Broad St. Phila 8, Pa.
Inferno Co. 115 Ricou St. Shreveport, La.
Jerguson Gage & Valve Co. 87 Fellsway, Somerville, Mass.
Magnetrol Inc. 2110 S Marshall Blvd. Chicago 23, Ill.
Reliance Gauge Column Co. 5902 Carnegie Ave. Cleveland 3, Ohio
Stets Co. 1440 Broadway, New York 18, N. Y.
Swift Lubricator Co Inc. 100 Home St. Elmira, N. Y.
Williams Gauge Co. 2055 Pennsylvania Ave. Pittsburgh 12, Pa.
Wright-Austin Co. 3245 Wight St. Detroit 7, Mich.
Yarnall-Waring Co. Chestnut Hill, Philadelphia 18, Pa.

WATER TREATMENT, BOILER

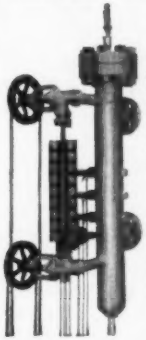
Acme Industrial Compounds Corp. 625 S Goodman St. Rochester 7, N. Y.
Alladdin Labs Inc. 68 William St. New York 5, N. Y.
Alken-Murray Corp. 131 E 23rd St. New York 10, N. Y.
Allis-Chalmers Mfg Co. 952 S 70th St. Milwaukee 1, Wis.
American Cyanamid Corp. 30 Rockefeller Plaza, N. Y. 20, N. Y.
American K A T Corp. Garwood, N. J.

YARWAY

WATER COLUMNS & GAGES

Widely used by public utilities, industrial plants and institutions. Sold as complete units or separate columns and gages.

Floatless Hi-Lo Alarm in column depends for action on displacement of balanced solid weights. Whenever high or low water level destroys balance of weights, valve in top of column opens, admitting steam to alarm whistle. Yarway Water Columns made for all pressures up to 2500 lbs.



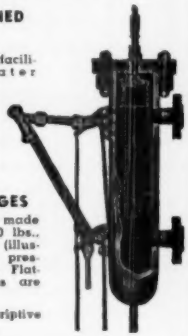
SESURE-INCLINED GAGE

(shown at right) facilitates reading water level from any point on boiler room floor, even directly beneath. Made with round glass for pressures up to 400 lbs.

VERTICAL GAGES

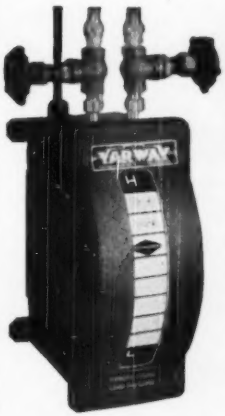
with round glass made for pressure to 400 lbs., with flat glass (illustrated at left) for pressures to 2500 lbs. Flat-glass steel inserts are mica protected.

Send for descriptive Bulletin WG-1811.



YARWAY REMOTE

LIQUID LEVEL INDICATORS



Yarway's Remote Liquid Level Indicator brings overhead gage readings right down to eye level, on the instrument panel or other convenient place. It gives instant, accurate boiler water level indication on a brilliantly lighted red and green dial.

The Yarway Remote Liquid Level Indicator is accurate because IT'S OPERATED BY THE BOILER WATER ITSELF —by the pressure differential between a constant head of water and the varying head in the boiler drum . . . a unique indicating mechanism which is never under pressure. Action is instant, constant, frictionless. THERE ARE NO STUFFING BOXES. Suitable for all pressures up to 2500 psi.

Moderately priced and easily installed on new or existing equipment. Thousands already in use, not only to indicate boiler and feed heater water levels, but also other liquid levels and superheater pressure differential.

For complete description, write for Bulletin WG-1822.

For description of Yarway HI-LO-GRAPH Liquid Level Recorder, write for Bulletin WG-1830

See other Yarway Advertisements on pages 92, 96, 125, 130

YARNALL-WARING COMPANY

100 MERMAID AVE., PHILA. 18, PA.

American Locomotive Co, Schenectady 5, N. Y.
American Sand-Banum Co Inc, 9 Rockefeller Plaza, N Y C 20, N. Y.
Betz, W H & L D, Gillingham & Worth Sts, Philadelphia 24, Pa.
Belco Industrial Equip Div Inc, 52 Iowa Ave, Paterson 3, N. J.
Bird-Archer Co, 400 Madison Ave, New York 17, N. Y.
Bogue Electric Co, 52 Iowa Ave, Paterson 3, N. J.
Brooks Boiler Treatment Co, 3304 E 87th St, Cleveland, Ohio
Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Butler Engrg Co, 2612 Rousseau St, New Orleans, La.
Chesterton, A W Co, 64 India St, Boston, Mass.
Cochrane Corp, 17th St & Allegheny Ave, Phila 32, Pa.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill.
Dominion Chemical Co Inc, 11 W 42nd St, Dept A, N Y C 18, N. Y.
Drew, E F & Co, 15 E 26th St, New York 10, N. Y.
Electromatic Water Treatment Inc, 475 Fifth Ave, N. Y. 17, N. Y.
Elgin Softener Corp, 130 N Grove Ave, Elgin, Ill.
Feedwater Treatment Corp, 40 Court St, Boston 8, Mass.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Graver Water Conditioning Co, 216 W 14th St, New York 11, N. Y.
Griscom-Russell Co, 285 Madison Ave, New York 17, N. Y.
Haering, D W & Co, 205 W Wacker Dr, Chicago 6, Ill.
Hagan Corp, Hagan Bldg, Pittsburgh 30, Pa.
Hall Laboratories, Inc, Hagan Bldg, Pittsburgh, Pa.
Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Hungerford & Terry, Inc, 226 Atlantic Ave, Clayton, N. J.
Illinois Water Treatment Co, 883-5 Cedar St, Rockford, Ill.
Infilco Inc, 325 W 25th Place, Chicago 16, Ill.
Kelite Prod Inc, Box 2917 Terminal Annex, Los Angeles 54, Calif.
LaMotte Chemical Products Co, Towson, Baltimore 4, Md.
Lapp Insulator Co, Inc, 150 Maple St, Le Roy, N. Y.
Layne & Bowler Inc, Box 6815, Hollywood Sta, Memphis 8, Tenn.
McKays Co, 473 Cleveland Ave N, St Paul, Minn.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
Magnus Chemical Co Inc, South Ave, Garwood, N. J.
Maxfal Chemical Co, 33 W 42nd St, New York 18, N. Y.
Monsanto Chemical Co, 1700 S Second St, St Louis 4, Mo.
National Aluminate Corp, 6246 W 66th Place, Chicago 38, Ill.
Pennsylvania Salt Mfg Co, 1000 Widener Bldg, Phila, Pa.
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Perolin Co Inc, 10 E 40th St, New York 16, N. Y.
Philadelphia uartz Co, 1146 Public Ledger Bldg, Phila 6, Pa.
Polyphase Chem Services, Inc, 254 W 54 St, New York, N. Y.
Portland Shingle Co, 9038 N Denver Ave, Portland 17, Ore.
Proportioneers Inc, 345 Harris Ave, Providence 1, R. I.
Research Products Co, 1015 E Washington Ave, Madison 3, Wis.
Resinous Products Div, 222 W Washington Sq, Phila, Pa.
Saverite Engrg Co, 1032 Willow Ave, Hoboken, N. J.
Standard Chemicals, Inc, 36 Summer St, Natick, Mass.
Suhm Co, 4701 W Electric Ave, Milwaukee 14, Wis.
Water Treatment Co of America, 1159 Hodgkiss St, Pittsburgh, Pa.
Western Chemical Co, 713 Washington St, Kansas City 6, Mo.
Worthington Pump & Machy Corp, Harrison, N. J.
Wright Chemical Corp, 617 W Lake St, Chicago 6, Ill.
Xzit Chemical Co, 158-14th St, Hoboken, N. J.

WATER TREATMENT, CONDENSER, COOLING CIRCUIT

Alladdin Labs Inc, 68 William St, New York 5, N. Y.
Alken-Murray Corp, 131 E 23rd St, New York 10, N. Y.
Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.
American Cyanamid Corp, 30 Rockefeller Plaza, N. Y. 20, N. Y.
American Sand-Banum Co Inc, 9 Rockefeller Plaza, N Y C 20, N. Y.
American Water Softener Co, S E Cor 4th & Lehigh Aves, Phila 33.
Betz, W H & L D, Gillingham & Worth Sts, Philadelphia 24, Pa.
Bird-Archer Co, 400 Madison Ave, New York 17, N. Y.
Brooks Boiler Treatment Co, 3304 E 87th St, Cleveland, Ohio
Buromin Co, Hagan Bldg, Pittsburgh 30, Pa.
Butler Engrg Co, 2612 Rousseau St, New Orleans, La.
Carr, Clifford H Co, 614 W 67th St, Kansas City 5, Mo.
Chain Belt Co, 1674 W Bruce St, Milwaukee 4, Wis.
Condenser Service & Engrg Co, Inc, 95 River St, Hoboken, N. J.
Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill.
Dominion Chemical Co Inc, 11 W 42nd St, Dept A, N Y C 18, N. Y.
Drew, E F & Co, Inc, 15 E 26th St, New York 10, N. Y.
Electromatic Water Treatment Inc, 475 Fifth Ave, N. Y. 17, N. Y.
Elgin Softener Corp, 130 N Grove Ave, Elgin, Ill.
Feedwaters, Inc, 140 Cedar St, New York 6, N. Y.
Graver Water Conditioning Co, 216 W 14th St, New York 11, N. Y.
Griscom-Russell Co, 285 Madison Ave, New York 17, N. Y.
Haering, D W & Co, 205 W Wacker Dr, Chicago 6, Ill.
Hall Laboratories Inc, Hagan Bldg, Pittsburgh 30, Pa.
Heilman Boiler Wks, 132 Linden St, Allentown, Pa.
Illinois Water Treatment Co, 883-5 Cedar St, Rockford, Ill.
Inertol Co Inc, 480 Frelinghuysen Ave, Newark 5, N. J.
Infilco Inc, 325 W 25th Place, Chicago 16, Ill.
Kelite Products Inc, Box 2917 Terminal Annex, Los Angeles 54, Calif.
Lapp Insulator Co, Inc, 150 Maple St, Le Roy, N. Y.
Layne & Bowler Inc, Box 6815, Hollywood Sta, Memphis 8, Tenn.
Madden, P E & Co, 352 W Walton St, Chicago 10, Ill.
National Aluminate Corp, 6246 W 66th Place, Chicago 38, Ill.
Pennsylvania Salt Mfg Co, 1000 Widener Bldg, Phila, Pa.
Permutit Co, 330 W 42nd St, New York 18, N. Y.
Perolin Co Inc, 10 E 40th St, New York 16, N. Y.
Philadelphia Quartz Co, 1146 Public Ledger Bldg, Phila 6, Pa.
Polyphase Chem Service Inc, 254 W 54th St, N Y C 18, N. Y.
Portland Shingle Co, 9038 N Denver Ave, Portland 17, Ore.
Proportioneers Inc, 345 Harris Ave, Providence 1, R. I.
Resinous Products Div, 222 W Washington Sq, Phila, Pa.
Saverite Engrg Co, 1032 Willow Ave, Hoboken, N. J.
Standard Chemicals Inc, 36 Summer St, Natick, Mass.
Wallace & Tiernan, 1 Main St, Belleville 9, N. J.
Water Treatment Co of America, 1159 Hodgkiss St, Pittsburgh, Pa.
Western Chemical Co, 713 Washington St, Kansas City 6, Mo.
Worthington Pump & Machy Corp, Harrison, N. J.
Wright Chemical Corp, 617 W Lake St, Chicago 6, Ill.
Xzit Chemical Co, 158-14th St, Hoboken, N. J.

WELDING AND CUTTING OUTFITS, OXYACETYLENE

Air Reduction Sales Co, 60 E 42nd St, New York 17, N. Y.
Dockson Corp, 3839 Wabash Ave, Detroit 8, Mich.
Eutectic Welding Alloys Corp, 40 Worth St, New York 13, N. Y.
Imperial Brass Mfg Co, 1200 W Harrison St, Chicago 7, Ill.
Linde Air Products Co, 30 E 42nd St, New York 17, N. Y.
Marquette Mfg Co, 307 E Hannepin Ave, Minneapolis 14, Minn.

WELDING MACHINES, ELECTRIC

Air Reduction Sales Co, 60 E 42nd St, New York 17, N. Y.
DoAll Co, Des Plaines, Ill.
Elsler Engrg Co Inc, 757 S 13th St, Newark 3, N. J.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, N Y C 17, N. Y.
Harnischfeger Corp, 4400 W National Ave, Milwaukee 14, Wis.
Hobart Brothers Co, Hobart Square, Troy 1, Ohio
Lincoln Elec Co, 12818 Coit Rd, Cleveland 1, Ohio
Linde Air Products Co, 30 E 42nd St, New York 17, N. Y.
Marquette Mfg Co, 307 E Hannepin Ave, Minneapolis 14, Minn.
Metal & Thermal Corp, 100 E 42nd St, New York 18, N. Y.
Smith, A O, Corp, 3533 N 27th St, Milwaukee 1, Wis.
Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.

WHEELS, GRINDING

DoAll Co, Des Plaines, Ill.
Norton Co, 1 New Bond St, Worcester 6, Mass.
Raybestos-Manhattan Inc, 61 Willett St, Passaic, N. J.
United States Rubber Co, 1230 6th Ave, New York 20, N. Y.

WINCHES, ELECTRIC, HAND

American Hoist & Derrick Co, 63 S Robert St, St Paul 1, Minn.
Bartlett, C O & Snow Co, 6200 Harvard Ave, Cleveland 5, Ohio
Beebe Bros, 2724 6th Ave S, Seattle 4, Wash.
Graybar Electric Co Inc, 420 Lexington Ave, N Y C 17, N. Y.
Hewitt-Robins Inc, 370 Lexington Ave, New York 17, N. Y.
Jeffrey Mfg Co, 932-99 N Fourth St, Columbus 16, Ohio
Link-Belt Co, 2410 W 18th St, Chicago 8, Ill.
Robbins & Myers Inc, 1345 Lagonda Ave, Springfield, Ohio
Shaw-Box Div, Manning, Maxwell & Moore Inc, Muskegon, Mich.
Shepard Niles Crane & Hoist Corp, Schuyler Ave, Montour Falls, N. Y.
Silent Hoist & Crane Co, 841 63rd St, Brooklyn 20, N. Y.
Stephens-Adamson Mfg Co, 5 Ridgeway, Aurora, Ill.
Wheeler, C H, Mfg Co, Lehigh & Sedgley Aves, Phila, 32, Pa.
Yale & Towne Mfg Co, Roosevelt Blvd, Philadelphia 15, Pa.

WIRE AND CABLE, ELECTRIC, 600 V AND UNDER

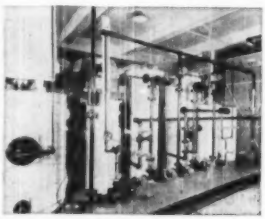
Aluminum Co of America, 1987 Gulf Bldg, Pittsburgh, Pa.
American Steel & Wire Co, Rockefeller Bldg, Cleveland 13, Ohio
Anaconda Wire & Cable Co, 25 Broadway, New York 4, N. Y.
Federal Telephone & Radio Corp, 100 Kingsland Rd, Clifton, N. J.
General Cable Corp, 420 Lexington Ave, New York 17, N. Y.
General Electric Co, Apparatus Dept, Schenectady 5, N. Y.
Graybar Electric Co Inc, 420 Lexington Ave, N Y C 17, N. Y.
Kerite Co, 30 Church St, New York 7, N. Y.
National Electric Products Corp, Chamber of Commerce Bldg, Pittsburgh, Pa.
Okonite Co, Canal St, Passaic, N. J.
Rockbestos Products Corp, 385 Nicoll St, New Haven 4, Conn.
Roebling's, John A Sons Co, Trenton 2, N. J.
Royal Electric Co Inc, 95 Grand Ave, Pawtucket, R. I.
Simplex Wire & Cable Co, 79 Sidney St, Cambridge 39, Mass.

COCHRANE WATER CONDITIONING

SLUDGE CONTACT REACTORS

For clarification of industrial waters; pretreatment of boiler feed and recovery of paper fibre and filler from white paper. Motor driven agitator thoroughly mixes raw water and chemicals to form a floc or precipitate, so that water is both treated and filtered by this sludge bed as it rises in the tank. Speeds up clarification, chemical reactions are more complete, resulting in more stable water and great saving in chemicals is realized. Publication 5001.

Demineralizer



Designed to deliver water equivalent to commercially distilled water at low cost for installation and operation. Minerals or salts are removed from the water by ion exchange and acid absorption. The water is first passed through a carbonaceous or resinous ion exchanger (zeolite) which exchanges metallic ions for equivalent quantities of hydrogen. The effluent passes through a resinous material which absorbs the mineral acids. Carbon dioxide may then be removed by means of a Cochrane Decarbonator. Publication 4181.

COCHRANE CORPORATION
3106 N. 17th STREET PHILADELPHIA 32, PA.

COCHRANE
SINCE 1863

For additional information about manufacturers' products

Tennessee Coal Iron & R R Co, U S Steel Sub. Brown Marx Bldg, Birmingham, Ala.
United States Rubber Co. 1230 6th Ave, New York 20, N. Y.

WIRE AND CABLE, ELECTRIC, OVER 600 V

Aluminum Co of America, 1987 Gulf Bldg, Pittsburgh, Pa.
American Steel & Wire Co. Rockefeller Bldg. Cleveland 13, Ohio
Anaconda Wire & Cable Co. 25 Broadway, New York 4, N. Y.
Chase Brass & Copper Co. 236 Grand St. Waterbury 20, Conn.
Federal Telephone & Radio Corp, 100 Kingsland Rd. Clifton, N. J.
General Cable Corp. 420 Lexington Ave, New York 17, N. Y.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Graybar Electric Co Inc. 420 Lexington Ave, N Y C 17, N. Y.
Kerite Co. 30 Church St. New York 7, N. Y.
National Electric Products Corp. Chamber of Commerce Bldg. Pittsburgh, Pa.
Okonite Co. Canal St. Passaic, N. J.
Rockbestos Products Corp. 285 Nicoll St. New Haven 4, Conn.
Roebling's, John A Sons Co. Trenton 2, N. J.
Tennessee Coal Iron & R R Co. U S Steel Sub. Brown Marx Bldg. Birmingham, Ala.
United States Rubber Co. 1230 6th Ave, New York 20, N. Y.

ZEOLITES

(See Water Softeners)

POWER SERVICE GUIDE

DEALERS, EQUIPMENT

(See Searchlight Section of This Issue)

INSURANCE, BOILER AND POWER EQUIPMENT

Columbia Casualty Co. 1 Park Ave, New York 16, N. Y.
Hartford Steam Boiler Inspection & Insurance Co. 56 Prospect St. Hartford 2, Conn.
Mutual Boiler Insurance Co of Boston, 60 Batterymarch St. Boston 10, Mass.
Ocean Accident & Guarantee Corp Ltd, 1 Park Ave. New York 16, N. Y.

MAGNETIC INSPECTION DEVICES

Associated Research Inc. 3758 W Belmont Ave. Chicago 3, Ill.
duMont Corp. 39 Beacon St. Greenfield, Mass.
Erlez Mfg Co. 420 Commerce Bldg. Erie, Pa.
General Electric Co. Apparatus Dept. Schenectady 5, N. Y.
Magnaflux Corp. 5900 Northwest Highway, Chicago 31, Ill.

REPAIR WORK, BOILER

Badenhausen, John Phillips, South Ave & Reading R R, Wyncote, Pa.
Bigelow Co. Lloyd & River Sts. New Haven 13, Conn.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Edge Moor Iron Wks Inc. 100 Edge Moor St. Edge Moor, Del.
Green, A P, Fire Brick Co. Mexico, Mo.
Heilman Boiler Wks, 132 Linden St. Allentown, Pa.
Koven, L O & Brother Inc. 154 Ogden Ave. Jersey City 7, N. J.
Nooter Corp. 1400 S 2nd St. St Louis 4, Mo.
Reinties, Geo P. Co. 2517 Jefferson St. Kansas City, Mo.
Sexauer, J A, Mfg Co Inc. 2503 3rd Ave. New York 51, N. Y.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.
Waite Construction Co. 111 Westminster St. Providence 3, R. I.

REPAIR WORK, CASTINGS

Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7, Wis.
Metalock Repair Service Inc. 36-19 48 Ave. L. I. City, N. Y.
Mercon Regulator Co. 2357 N 29th St. Milwaukee 10, Wis.
Murray, D J, Mfg Co. Wausau, Wis.
Voss Machine Wks. 24 E 122nd St. New York, N. Y.

REPAIR WORK, CHIMNEYS

American Chimney Corp. 147 4th Ave, New York 3, N. Y.
Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Custodis, Alphons, Chimney Const Co. 25 Broadway, New York 4, N. Y.
Gunite Concrete & Constr Co. 1301 Woodswether Rd. Kansas City 6, Mo.
Kellogg, M W Co, 225 Broadway, New York 7, N. Y.

REPAIR WORK, CONDENSER

Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Heilman Boiler Wks. 132 Linden St. Allentown, Pa.
Nooter Corp. 1400 S 2nd St. St Louis 4, Mo.
Sturtevant Div, Westinghouse Elec Corp. Hyde Park, Boston 36, Mass.
Voss Machine Wks, 242 E 122nd St. New York, N. Y.

REPAIR WORK, ENGINE

Condenser Service & Engrg Co. Inc. 95 River St. Hoboken, N. J.
Filer & Stowell Co. 147 E Becher St. Milwaukee 7, Wis.
Lima-Hamilton Corp. Hamilton, Ohio
Murray, D J, Mfg Co. Wausau, Wis.
Nordberg Mfg Co. 3073 S Chase Ave. Milwaukee 7, Wis.
Voss Machine Wks. 242 E 122nd St. New York, N. Y.

SCHOOLS, POWER CORRESPONDENCE

Hays School of Combustion 430 N Michigan Ave. Chicago, Ill.
International Correspondence Schools, Scranton 9, Pa.

SERVICES, CONTRACTING, CONSTRUCTING

Austin Co. 16112 Euclid Ave. Cleveland 12, Ohio
Dravo Corp. Neville Island, Pittsburgh 25, Pa.
Fluor Corp Ltd. 2500 S Atlantic Blvd. Los Angeles 22, Calif.
Gunite Concrete & Construction Co. 1301 Woodswether Rd. Kansas City 6, Mo.
Kullman Corp. 1200 N Broad St. Philadelphia 21, Pa.
Lientz, B P, Mfg Co. 210 W 8th St. Kansas City, Mo.
McGraw, F H, Construction Co. 51 E 42nd St. New York 17, N. Y.
Pioneer Service & Engrg Co. 231 S LaSalle St. Chicago 4, Ill.
Pritchard, J F & Co. 908 Grand Ave. Kansas City 6, Mo.
Sanderson & Porter, 52 Williams St. New York, N. Y.
Stone & Webster Engrg Co. 49 Federal St. Boston, Mass.
Turner Construction Co. 420 Lexington Bldg. New York 7, N. Y.
Waite Construction Co. 111 Westminster St. Providence 3, R. I.
White, J G, Engrg Corp. 80 Broad St. New York 4, N. Y.
Wilson, H M Co. 18th & Brandywine Sts. Phila. 30, Pa.

USED EQUIPMENT

(See Searchlight Section of this issue)

advertised in this issue see advertisers' index pages 222-223

GraybaR
has everything for WIRING

Graybar has all the proper materials and tools for any wiring job – plus conduit and the necessary fittings and connectors.
For all your other electrical requirements as well, call us. Thousands of electrical items are immediately available. Prompt delivery from local stocks often saves time. Graybar Specialists in each electrical field are on call to help solve unusual problems.

Wiring supplies are just a few items of the more than 100,000 electrical products distributed by Graybar nationally.

IN OVER 100 PRINCIPAL CITIES

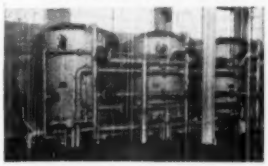
ELGIN WATER CONDITIONING
SINCE 1908

WATER SOFTENERS-ZEOLITE (Double Check design gives up to 44% more soft water. All types of zeolite.)
DEIONIZERS (give equivalent of distilled water.)
DEALKALIZERS (give hardness-free water of controlled alkalinity and reduced solids content.)
NEUTRALIZERS (counteract corrosive water.)
WATER FILTERS (types for every purpose.)
FEEDWATER TREATMENT (individually formulated.)
WATER TREATING CHEMICALS (for every need.)

Write for Bulletins

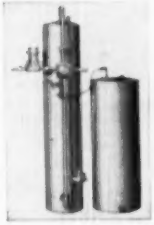
ELGIN SOFTENER CORPORATION
130 North Grove Avenue Elgin, Illinois

COCHRANE ZEOLITE SOFTENERS



Delivers water at zero hardness by the soap test. Widely used, not only in feedwater conditioning, but in all industries where scale forming or soap consuming properties of water are objectionable. All commonly known zeolite minerals can be furnished. Exclusive with Cochrane Zeolite Softener is the Hydromatic Single Control Valve. It simplifies the functions of the usual valve nest in one single control valve. Publication 4460.

JUNIOR INDUSTRIAL ZEOLITE SOFTENER



For boiler and industrial plants, small laundries, hospitals, apartment houses, etc., where relatively small quantities (less than 100 gpm) of softened water are required, the zeolite softener has proven to be one of the most economical water conditioning methods available because of: (1) low initial cost (2) simplicity of operation (3) low chemical costs. For this service, Cochrane offers two groups of industrial type zeolite softeners satisfactory for practically all requirements. These are available in single and double-unit designs. The single-unit is recommended if a storage tank is available for the soft water. The double-unit is recommended where storage is not available, but a continuous supply of soft water is mandatory.
Both groups are offered with various types of zeolite making the line readily adapted to different water supplies and periods between regeneraiton. The use of the single control valve on all units makes regeneration simple, requiring little, if any, technical knowledge of the mechanism of the water softening process. Publication 4505.

COCHRANE CORPORATION
3106 N. 17th STREET PHILADELPHIA 32, PA.

COCHRANE
SINCE 1863

Index to Former

An alphabetical list of companies for the convenience of buyers seeking

● To help you locate replacement parts for equipment that is no longer made by the original manufacturer, POWER has prepared this index. It is a listing of power-equipment companies which have been purchased or absorbed by other companies.

HOW TO USE: Look for the company name, shown on the nameplate of your equipment, in this alphabetical index. Directly following this listing is the name and

NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Advance Pump and Compressor Co –American-Marsh Pumps, Inc. 99 Campito Avenue, NE, Battle Creek Mich.	Pumps	No	Yes
Aero Pulverizer Co. –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Pulverizers	No	Yes
Airex Co. –Manning, Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Valves	Yes	Yes
Alberger Pump Co. –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Heaters & Pumps	No	Yes
American Automatic Ice Machine Co –McQuay Inc, 1600 Broadway St, NE Minneapolis 13, Minn.	Ice Machines	Yes	Yes
American Ball Engine Co. –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Steam Engines	Yes	Yes
***American Blower Co.** –Troy Engine & Machine Co, Troy, Pa.	American Blower's Type "A" and "E" Vertical Steam Engines	No	Yes
American Brown Boveri –Allis-Chalmers Mfg Co, 1126 S 70th St, Milwaukee 1, Wisc.	Turbo-Blowers Transformers	Yes	Yes
American Filter Co –Oshkosh Filter & Softener Co, 1 Coape Street, Oshkosh, Wis.	Filters	No	Yes
The Am. High Speed Chain Co. –The Union Chain & Mfg Co, Sandusky, Ohio	Roller Chain	Yes	Yes
American Liquid Meter Co. –Bowser, Inc, 1302 E Creighton Ave, Fort Wayne 5, Ind.	Liquid Meters	No	Yes
American Relay & Controls, Inc. –Ohmite Mfg Co, 4835 W Flournoy St, Chicago 44, Ill.	Relays & Solenoids	Yes	Yes
American Schaeffer & Budenberg Corp. –Manning Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Insts, Gages, Safety Valves	Yes	No
American Steam Gauge & Valve Mfg Co –Manning, Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Pressure Gauges, Valves	No	No
American Stoker Co. –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Stokers	No	Yes
***American Thermometer Co, Div** –H-B Instrument Company, Inc, 2633 Trenton Ave, Philadelphia 25, Pa.	Thermometers	Yes	Yes
Ashton Valve Co. –Crosby Steam Gage & Valve Co, 10 Roland St, Boston 29, Mass.	Gages, Valves	Yes	Yes
Athol Pump Co –Leavitt Machine Co, 10 E River St, Orange, Mass.	Pumps	No	No
Aurora Pump & Mfg Co. –Aurora Pump Co, Aurora, Ill.	Pumps	Yes	Yes
Badenhausen Corp. –Riley Stoker Corp, 9 Neponset St, Worcester, Mass.	Boilers	Yes	Yes
Bagley & Sewall Co –O'Brien Steam Specialty Co, Inc, 312 Heffernan Bldg, Syracuse 2, N.Y.	Traps	No	No
Baldwin-Duckworth Co –Baldwin Duckworth Div, Chain Belt Co, 1674 W Bruce St, Milwaukee, Wis.	Roller Chain, Flexible Couplings	Yes	Yes
Ball Engine Co. –Wilson-Snyder Mfg Div, Oil Well Supply Co, Braddock, Pa.	Steam Engines	No	Yes
Barr Constructors –Boiler Equipment Trust Co, Amherst, Mass.	Soot Blowers	Yes	Yes
Bartlett-Hayward Co –Bartlett-Hayward Div, Koppers Co, Inc, Koppers Bldg, Pittsburgh 19, Pa.	Precipitators Couplings Gas Equipment	Yes	Yes
Belfield Valve Co –Industrial Div, Minneapolis-Honeywell Regulator Co 1901 Windrim Ave. Philadelphia, Pa.	Valves	Yes	Yes
Bell Tool Company –Hill Pump Valve Co, 2728 Elston Ave, Chicago 47, Ill.	Flexible Shafts	Yes	Yes
Bignall & Keeler Machine Works –John Ramming Machine Co, 4591 McRee Ave, St. Louis 10, Mo.	Pipe Threading Machines	Yes	Yes

NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Bilanx Corp. –International Combustion Corp, 436 Pearl St, New York, N. Y.	Steam Separators	Yes	Yes
Blackburn-Smith Mfg Co, Inc. –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Filters, Strainers	Yes	Yes
Blake Mfg Co. –Hoffman Specialty Co, 1001 York St, Indianapolis 7, Ind.	Plumbing Specialties	Yes	Yes
The Borden Co –Beaver Pipe Tools Inc 310 Dana St, NE, Warren, Ohio	Threading Tools	Yes	Yes
***Bowser, Inc.** –Mansel Brothers Co, Inc, 315 Babcock St, Buffalo 10, N. Y.	Lubricators	No	Yes
Box Crane & Hoist Corp –Shaw-Box Div, Manning Maxwell & Moore Inc, Muskegon, Mich.	Cranes and Hoists	Yes	Yes
The Brown Engineering Co. –The Brady Conveyor Corp, 24 W Jackson Blvd, Chicago 4, Ill.	Ash Conveyors	Yes	Yes
Brown Instrument Co. –Industrial Div., 4458 Wayne Ave. Philadelphia, Pa.	Industrial Insts.	Yes	Yes
Buckeye Laboratories –Bowser, Inc, 1302 E Creighton Ave, Fort Wayne 5, Ind.	Oil Reclaiming Equipment	Yes	Yes
Busch-Sulzer Bros. Diesel Engine Co. –Nordberg Manufacturing Co, 3073 S Chase Ave, Milwaukee, Wisc.	Diesel Engines	Yes	Yes
By-Products Steel Corp. –Lukens Steel Co, Coatesville, Pa.	Steel Plate Shapes	Yes	Yes
California Tank Co. –Santa Fe Tank & Tower Co, 5401 Boyle Ave, Los Angeles, Calif.	Wood Tanks	Yes	Yes
A. S. Cameron Steam Pump Co. –Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.	Pumps	Yes	Yes
Canton Grate Corporation –Canton Stoker Corp, 741 Andrews Place S W, Canton, Ohio	Grates	Yes	Yes
Capacitron Co. –Jefferson Electric Co, Bellwood, Ill.	Condensers	Yes	Yes
Carbondale Machine Co. –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Air Conditioning & Refrigeration Equipment	Yes	Yes
Carpenter Eng. & Equip. Co. –Laclede Stoker Co, 4438 Hunt Ave, St. Louis 10, Mo.	Stokers	Yes	Yes
Casey Hedges Boiler Co. –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes

*This company is still manufacturing under its own name, the company, directly following, has purchased the rights to only the one product listed in the second column, but not to the entire company.

Manufacturers

taken over, absorbed, or merged— to buy new units or replacement parts

address of the company now manufacturing this equipment. For example: If the nameplate on your pump says Alberger Pump Co., look under "Name of Company Absorbed" for Alberger Pump Co. Then, under the name Alberger Pump Co., you will find that the Foster Wheeler Corp. in New York now owns this company, that the pump is no longer made, but that replacements and parts are still available.

NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Centrifuge Mechanical Equip. Co. -Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Centrifuges	Yes	Yes
Chapman-Stein Company -Surface Combustion Corp, Grover & Sherman Sts, Toledo, Ohio	Furnaces	Yes	Yes
Chicago Fuse Co. -Jefferson Electric Co, Bellwood, Ill.	Fuses	Yes	Yes
***Cleve. Pneu. Tool Co. Pneu. Div.** -Cleco Div, Reed Roller Bit Co, 2119 Reed St, Houston, Texas	Pneumatic Tools	Yes	Yes
***Cleveland Tool Co. -Centaur Div LeRoi Co,** 1706 S 68th St, Milwaukee 14, Wis.	Air Tools	Yes	Yes
***Climax Engineering Co.** -Controls Div, Climax Controls Div, Black Sivalls & Bryson, Inc, Tulsa, Okla.	Controls	Yes	Yes
***Cochrane Coporation** -The Hays Corporation, Michigan City, Ind.	Flow Meters	Yes	Yes
***Cochrane Corp, Instrument Div.** -Pennsylvania Industrial Instrument Co, 3116 N 17th St, Philadelphia, Pa.	Meters, Instruments	Yes	Yes
Coffin Valve Co -The Chapman Valve Mfg Co, 203 Hampshire St, Indian Orchard, Mass.	Sluice Gates	Yes	Yes
Columbian Iron Works -Mueller Co, 512 W Cerro Gordo St, Decatur 70, Ill.	Water Controlling Equipment	Yes	Yes
Condit Co -Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee 1, Wis.	Circuit Breakers	Yes	Yes
D. Connelly Boiler Co. -Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Boilers	No	Yes
Connelly Iron Sponge & Governor Co -Norwalk Valve Co, 33 Railroad Ave, South Norwalk, Conn.	Regulators, Gages, Check Valves	Yes	Yes
Coxe Traveling Grate Co. -Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Stokers	Yes	Yes
Cream City Foundry -Cutler-Hammer, Inc, 315 N 12th St, Milwaukee, Wisc.	Castings	Yes	Yes
Danville Iron & Steel Co. -Kennedy Van Saun Mfg & Engrg Corp, 2 Park Ave, New York, N. Y.	Foundry Prods.	Yes	Yes
G. M. Davis Regulator Co. -Davis Regulator Co, 2540 S Washtenaw Ave, Chicago, Ill.	Regulators	Yes	Yes
Dayton-Dowd Company -Peerless Pump Div, Food Machinery Corp, 301 West Ave, 26 Los Angeles, Calif.	Horizontal Pumps	Yes	Yes
DeBothezat Impeller Co -American Machine & Metals, Inc East Moline, Ill.	Fans & Blowers	Yes	Yes
DeLa Vergne Engine Co. -The Baldwin Locomotive Works, 940 Paschall P. O, Phil, Pa.	Diesel Engines	Yes	Yes
Julian D'Este Div. Am. Chain & Cable Co. -Kaye & MacDonald, Inc, 94 Franklin Ave, West Orange, N. J.	Steam Specialties	Yes	Yes
Detroit Electric Furnace Co. -Kuhlman Elec Co, 2700 Garfield Blvd, Bay City, Mich.	Elec. Furnaces	Yes	Yes
J. P. Devine Mfg Co. -H. K. Porter Co, 74 Foley St, Somerville, Mass.	Heat Exchangers	Yes	Yes
Dover Boiler Works -L. O. Koven & Bro, Inc, Ogden & Koven Aves, Jersey City 7, N. J.	Steel Fabrications	Yes	Yes
***Richard Dudgeon Co.** -Wilson-Dudgeon Div, Thomas C, Wilson, Inc, 21-11 44th Ave, Long Island City 1, N. Y.	Tube Expanders	Yes	Yes
Dwight Mfg Co -F W Dwyer Mfg Co 317 S Western Ave, Chicago, Ill.	CO_2 Indicators	No	No
Eddy Valve Co. -James B. Clow & Sons, 201-299 N Talman Ave, Chicago 80, Ill.	Valves	Yes	Yes
Edgemoor Iron Works Division -Condenser Service and Engrg Co, Inc, 95 River St, Hoboken N. J.	Boilers, Tanks	Yes	Yes
Electrical Instrument & Engrg Co. -James G. Biddle Co, 1316 Arch St, Philadelphia, Pa.	Elec. Instruments	No	Yes
Electrimatic Valve Co -Jas P Marsh Corp, Skokie, Ill.	Regulators, Valves	Yes	Yes
Electro Chemical Engineering Corp -Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill.	Meters, Instruments	Yes	Yes
Engberg's Electric & Mechanical Works -Troy Engine & Machine Co, Troy, Pa.	Generators & Steam Engines	No	Yes
Epping-Carpenter Pump Co. -Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Pumps	No	No
***Frederick Flader, Inc.** -Clark Bros, Olean, N. Y.	Compressors	Yes	Yes
Floorsteel Co. -Wm. F. Klemp Co, 6640 S Melvina Ave, Chicago, Ill.	Steel Floor Armor	Yes	Yes
Foos Gas Engine Co -Fulton Iron Works Co 1259 Delaware Ave, St Louis 14, Mo.	Gas & Gasoline Engines	No	Yes
***Frederick Engineering Co.** -Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Stokers	Yes	Yes
Fuerst-Friedman Co -Columbia Electric Mfg Co 4519 Hamilton Ave, Cleveland 14, O.	Motors, Generators	Yes	Yes
Fuller Lehigh Co. -The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Pulverized Coal Equipment	Yes	Yes
Furnace Engineering Co. -Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Pulverizers	No	Yes
Gamon Meter Co. -Worthington-Gamon Meter Co, Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, New Jersey	Meters	Yes	Yes
Gardner Governor Co -Gardner-Denver Co, Quincy, Ill.	Pumps, Compressors	Yes	Yes
Gast Mfg Corp -Johnson Corp, 865 Wood St, Three Rivers, Mich.	Air Separators	Yes	Yes
***Gehl Bros. Mfg Co. Stoker Div.** -Eddy Stoker Corp, 4711 North Ave, Chicago 39, Illinois	Stokers	Yes	Yes
Gehnrich Oven Division -W. S. Rockwell Co, 200 Eliot St, Fairfield, Conn.	Industrial Ovens	Yes	Yes
General Air Filter Co. -American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	No	No

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NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
General Machinery Co. –Lima-Hamilton Corp, Hamilton, Ohio	Diesels, Steam Engines	Yes	Yes
Gillis & Geoghegan Hoist Corp –Brady Conveyors Corp, 20 Jackson Blvd, Chicago 4, Ill.	Hoists	Yes	Yes
Gilman Mfg Co. –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Rock Drill Equip.	Yes	Yes
Girtanner Engrg Corp. –National Conveyor Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
***Globe Mfg Co, Air Compressor Div.** –Schramm, Inc, West Chester, Pa.	Air Compressors	Yes	Yes
Green Engineering Co. –Combustion Engrg-Superheater, Inc. 200 Madison Ave, New York, N. Y.	Stokers	Yes	Yes
Grieve Grate Co. –Combustion Engrg-Superheater, Inc. 200 Madison Ave, New York, N. Y.	Grates	Yes	Yes
H-B Electric Co –H-B Instrument Co, Inc, 2633 Trenton Ave, Philadelphia 25, Pa.	Relays	Yes	Yes
George J. Hagan Co. –Beaumont Birch Co, 1505 Race St, Philadelphia 2, Pa.	Steam Jet Ash-Conveyors	No	Yes
Hall Mfg Co –Waterbury Tool Div, Vickers, Inc, 188 East Aurora St, Waterbury 67, Conn.	Valve Refacers, Valve Seat Grinders	Yes	Yes
Hanlon Waters, Inc. –Climax Engineering Co, Box 1529 Tulsa 1, Okla.	Valves, Controls	Yes	Yes
Hare Stoker Corp. –Hoffman Combustion Engrg Co, 710 Marquette Bldg, Detroit, Mich.	Stokers	No	Yes
Harrisburg Engine Co. –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Steam Engines	Yes	Yes
Heggie-Simplex Boiler Co. –Lookout Boiler & Mfg Co, Mfrs. Rd. & Compress St, Chattanooga, Tennessee	Heating Boilers	Yes	Yes
Heine Boiler Co. –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
Hercules Float Works –Henry Owens & Co, Inc, 51 Washington Ave, Cranston 7, R. I.	Floats	Yes	Yes
Hextell Co. –Wm. F. Klemp Co, 6640 S Melvina Ave, Chicago, Ill.	Heavy Duty Floor Covering	Yes	Yes
M. A. Hofft Co. –The Hofft Co, Inc, Georgia & West Sts, Indianapolis, Ind.	Waste Fuel Furnaces	Yes	Yes
Hohmann-Nelson Co –Manning, Maxwell & Moore, Inc, 11 Elias St, Bridgeport 2, Conn.	Controllers	No	No
Honeywell-Heating Specialties Co. –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Heating Controls	No	No
Wilbur G. Hudson Corp. –National Conveyors Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
C. W. Hunt Co. –Gifford-Wood Co, Hudson, N. Y.	Gates & Valves	Yes	Yes
Hynes Elec Heating Co. –Hynes Elec Heating & Process Div, Martin-Quaid Co, 1815 W Sedgeley Ave, Philadelphia, Pa.	Elec. Heaters	Yes	Yes
Independent Air Filter Co. –American Air Filter Co, Inc, First & Central Aves, Louisville 8, Ky.	Filters	No	Yes
Instant Water Heater Co –Johnson Corp, 865 Wood St, Three Rivers, Mich.	Water Heaters	Yes	Yes
Instrument Service Co. –Condenser Service and Engrg Co, Inc, 95 River St, Hoboken, N. J.	Instruments and Repair Service	Yes	Yes
Iowa Valve Co. –James B. Clow & Sons, 201-299 N Talman Ave, Chicago 80, Ill.	Valves	Yes	Yes
Kelly & Jones Co. –Walworth Co, 60 E 42nd St, New York, N. Y.	Valves, Fittings	Yes	Yes
Kerr Turbine Company –Elliott Co, Jeannette, Pa.	Steam Turbines	Yes	Yes
Kimball-Krough Pump Co. –Peerless Pump Div, Food Machinery Corp, 301 W Ave, 26 Los Angeles, California	Pumps	Yes	Yes
***King-Seeley Corp. Servo Governor Div** –Pierce Governor Co, 1611 Ohio Ave, Anderson 7, Ind.	Governors	Yes	Yes
Kitson Company, Div –The Welsbach Corp, 1500 Walnut St, Philadelphia 2, Pa.	Valves	Yes	Yes
L-R Mfg. Co. –Ripley Co, Inc, Factory St, Middletown, Conn.	Blowers	Yes	Yes
***Laclede Christy Clay Prods. Co.** –Laclede Stoker Co, 4438 Hunt Ave, St. Louis 10, Mo.	Stokers	Yes	Yes
Ladd Water Tube Boiler Co. –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
La Del Conveyor & Mfg Co –Joy Mfg Co, Olive Bldg, Pittsburgh 22, Pa.	Fans, Blowers, Conveyors	Yes	Yes
The Lagonda Mfg. Co. –Lagonda Div, Elliott Co, Springfield, Ohio	Tube Cleaners	Yes	Yes
Lawrence Machine Co. –Lawrence Machine & Pump Corp, 371 Market St, Lawrence, Mass.	Centrifugal Pumps	Yes	Yes
C. H. Leach Co. –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Refinery Equipment	Yes	Yes
Lee Engineering Co. –Condenser Service and Engrg Co, Inc, 95 River St, Hoboken, N. J.	Unit Heaters	Yes	Yes
H. Levine Cooperage Tank Dept. –Santa Fe Tank & Tower Co, 5401 Boyle Ave, Los Angeles, Calif.	Tanks, Cooling Towers	Yes	Yes
Liberty Manufacturing Co. –Elliott Company, Jeannette, Pa.	Tube Cleaners	Yes	Yes
Liquid Conditioning Corp –Cochrane Corp, 17th St, Allegheny Ave, Philadelphia 32, Pa.	Water Treatment Equipment	Yes	Yes
Locomotive Pulverized Fuel Co. –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Pulverized Fuel Equip.	Yes	Yes
Lorimer Engine Co –Atlas-Imperial Diesel Engine Co 1000 19th Ave, Oakland 6, Cal.	Diesel Engines	Yes	Yes
Lubrication Devices –The Farval Corp, 3250 E 80th St, Cleveland 4, Ohio	Centralized Lubrication Systems	Yes	Yes
Lukenweld, Inc. –Lukens Steel Co, Coatesville, Pa.	Welders	Yes	Yes
Magnetrol, Inc. –Magnetrol Div, Fred H. Schaub Engrg Co, Inc, 2110 S Marshall Blvd, Chicago, Ill.	Liquid Level Controls	Yes	Yes
Mantle Engineering Co. –Surface Combustion Corp, Grover & Sherman Sts, Toledo, Ohio	Heat Recuperators	No	Yes
Mark Manufacturing Co. –Clayton Mark & Co, 1900 Dempster St, Evanston, Ill.	Unions	Yes	No
McCann Harrison Co. –J. O. Ross Engrg Corp, 350 Madison Ave, New York 17, N. Y.	Unit Heaters	Yes	Yes
McIntyre Co. –Eastern Industries, Inc, 296 Elm St., New Haven 6, Conn.	Hydraulic Pumps, Fluid Motors	Yes	Yes
Mercury Clutch Corp. –Automatic Steel Products, Inc, Canton 6, Ohio	Auto. Clutches	Yes	Yes
Metalweld, Inc. –Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Portable Compressors	Yes	Yes
Midwest Air Filters, Inc. –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	Yes	Yes
Mines Equipment Co –Joy Mfg Co, Oliver Bldg, Pittsburgh 22, Pa.	Electrical Distribution Systems	Yes	Yes
Minneapolis Heat Regulator Co. –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Htg. Controls	No	No

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Moore Steam Turbine Corp. –Worthington Pump & Machinery Corp, 744 Broad St, Newark 2, N. J.	Turbines, Turbine-Generators	Yes	Yes
I. P. Morris –The Baldwin Locomotive Works, Paschall P. O, Phil, Pa.	Hydraulic Turbines	Yes	Yes
Levi Morris & Co –Baldwin Locomotive Works, Philadelphia 2, Pa.	Hydraulic Turbines	Yes	Yes
Morrow Mfg Co –McNally Pittsburg Mfg Corp, Pittsburg, Kansas	Coal Preparation Equipment	Yes	Yes
Murphy Iron Works –Riley Stoker Corp, 9 Neponset St, Worcester, Mass.	Stokers	Yes	Yes
Nagle Brothers –Nagle Pumps, Chicago Heights, Ill.	Pumps	Yes	Yes
National Air Filter Co. –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	Yes	Yes
National Chipveyor Systems –National Conveyor Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
National Conveyor Company –National Conveyors Co, Inc, 54 Church St, New York 7, N. Y.	Conveyors	Yes	Yes
National Machine Wks. –The E. H. Wachs Co, 1525 Dayton, Chicago, Ill.	Blast Gates, Valves	Yes	Yes
National Pipe & Foundry Co. –Walworth Co, 60 E 42nd St, New York, N. Y.	Soil Pipe, Fittings	No	No
National Regulator Co. –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis Minnesota	Pneumatic Controls	Yes	Yes
Neilan Co –Mason-Neilan Regulator Co 1190 Adams St, Boston 24, Mass.	Automatic Control Equipment	No	No
Herman Nelson Corp –American Air Filter Co, Inc, First & Central Aves, Louisville 8, Ky.	Unit Heaters	Yes	Yes
N. Y. Continental Jewel Filtration Co. –American Water Softener Co, Lehigh Ave & Fourth St, Phil 33, Pa.	Filters	Yes	Yes
Nichol Products Corp. –J. O. Ross Engrg Corp, 350 Madison Ave, New York 17, N. Y.	Unit Heaters	Yes	Yes
***Niles Crane Wks, Niles-Bement-Pond Co.** –Shepard Niles Crane & Hoist Corp, 410 Schuyler Ave, Montour Falls, New York	Elec. Cranes	Yes	Yes
Niles Tool Works –Lima-Hamilton Corp, Hamilton, Ohio	Diesels, Steam Engines	Yes	Yes
Northern Pump Co. –Northern Ordnance, Inc, 48th & N. E. Marshall, Minneapolis, Minn.	Pumps	No	Yes
Northern Water Gauge Co. –Swift Lubricator Co, Inc, 100 Burke St, Elmira, N. Y.	Gauges	Yes	Yes
The Ohio Blower Co. –The Swartwout Co, Cleveland, Ohio	Traps, Ventilators, Exhaust Heads, Separators	Yes	Yes
***Packard Electric Co. Transformer Div** –Standard Transformer Co, Dana Avenue, Warren, Ohio	Transformers	No	Yes
Pomona Pump Co. –Fairbanks Morse & Co, 600 S Michigan Ave, Chicago 5, Ill.	Pumps	Yes	Yes
Pan American Engineering Co –Simplex Oil Heating Corp, 11 Park Place, New York 7, NY	Oil & Gas Burning Equipment	Yes	Yes
Pelton Water Wheel Co –Baldwin Locomotive Works, Philadelphia 2, Pa.	Water Wheels, Hydraulic Turbines	Yes	Yes
Pfeil Cooperage Works –Arrow Tank Co, Inc, 75 Leroy Ave, Buffalo 14, N. Y.	Wood Tanks	Yes	Yes
Pittsburgh Seamless Tube Co. –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Tubes	Yes	Yes
Pittsburgh Transformer Co. –Allis-Chalmers Mfg Co, 1126 S 70th St, Milwaukee 1, Wisconsin	Transformers	Yes	Yes
Platt Iron Works –Worthington Pump & Machinery Corp, 744 Broad St, Newark 2, N. J.	Feedwater Heaters, Water Wheels	No	No
Pottsville Casting & Machine Shops, Inc. –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Cast Iron Shapes	Yes	Yes
Power Specialty Co. –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Superheaters	No	Yes
Pratt & Cady Co –The R-P & C Valve Div, American Chain & Cable Co, Inc, Reading, Pa.	Valves	Yes	Yes
Quimby Pump Co. –H. K. Porter Co, 74 Foley St, Somerville, Mass.	Pumps	Yes	Yes
Railway & Industrial Engrg Co. –ITE Circuit Breaker Co, 19th & Hamilton Sts, Phil 30, Pa.	Power Switches	Yes	Yes
Ransome Machinery Co. –Ransome Machinery Div, Worthington Pump and Machinery Corp, 744 Broad St, Newark 2, N. J.	Industrial Mixers, Welding Positioners	Yes	Yes
Rateau-Battu-Smoot Co –Elliott Co, Jeannette, Pa.	Centrifugal Blowers	Yes	Yes
Raymond Bros Impact Pulverizer Co. –Combustion Engrg-Superheater, Inc, 200 Madison Ave, New York, N. Y.	Pulverizers	Yes	Yes
Reading Steel Castings Co –The R-P & C Valve Div, American Chain & Cable Co, Reading, Pa.	Valves, Fittings	Yes	Yes
Reading Valve & Fitting Co –The R-P & C Valve Div, American Chain & Cable Co, Inc, Reading, Pa.	Valves, Fittings	Yes	Yes
Readrite Meter Works –J—B—T Instruments Inc, 461-B Chapel St, New Haven 8, Conn.	Meters	No	Yes
Reed Air Filter Co. –American Air Filter Co, Inc, First & Central Ave, Louisville 8, Ky.	Filters	No	Yes
Richardson-Phenix Co. –Bowser, Inc, 1302 E Creighton Ave, Fort Wayne 5, Ind.	Lubricating Equip	Yes	Yes
Rider-Ericsson Engine Corp. –Spence Engineering Co, Inc, Walden, N.Y.	Pumping Engines	No	No
Ridgway Dynamo & Engine Co. –The Elliott Co, Jeannette, Pa.	Steam Engines, Motors, Generators, Blowers	No Yes	Yes Yes
Riehle Bros Testing Machine Co –American Machine & Metals, Inc, East Moline, Ill.	Testing Machinery	Yes	Yes
Ring Balance Instrument Co. –Hagan Corp, 323 Fourth Ave, Pittsburgh, Pa.	Flow Meters	Yes	Yes
Robins Conveyors, Inc. –Hewitt-Robins, Inc, 370 Lexington Ave., New York 17, N. Y.	Mt'l Handling Equip	Yes	Yes
Rockwell Engineering Co. –W. S. Rockwell Co, 200 Eliot St, Fairfield, Conn.	Industrial Furnaces	Yes	Yes
P H & F M Roots Co –Roots-Connersville Blower Corp, 900 W Mount St, Connersville, Ind.	Blowers, Gas Pumps, Meters	Ye	Yes
***Ross Heater & Mfg Co.** –Warren Webster & Co, 17th & Federal Sts, Camden, N. J.	Exp. Joints	Yes	Yes
Roth Bros –Century Electric Co, 1806 Pine St, St. Louis 3, Mo.	Motors, Generators, Generator Sets	Yes	Yes
The Roto Co. –Roto Div, Elliott Co, Newark, N. J.	Tube Cleaners	Yes	Yes
Rust Boiler Co. –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Boilers	No	Yes
Safety Wrench & Appliance Co. –Lowell Wrench Co, Worcester 8, Massachusetts	Wrenches, Car Movers	Yes	Yes
***Saval, Inc, Industrial Valve Div** –Barksdale Valves, 4905 Santa Fe Ave, Los Angeles, Cal.	Valves	Yes	Yes
Sawyer Elec Mfg Co –A O Smith Corp, Pacific Coast Works, Motor Div, 5701 Smithway St, Los Angeles 22, Cal.	Motors, Grinders, Blowers	Yes No No	Yes No No
Jos. F. Schiller Valve Co. –Schade Valve Mfg Co, 2529 N Bodine St, Philadelphia, Pa.	Valves	Yes	Yes

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NAME OF COMPANY ABSORBED	Product	Still Mfg'd	Replacements Available
Schrader Power Pump Co. –Wagener Steam Pump Co, Canton, Ohio	Pumps	Yes	Yes
A. Schrader's Sons –Scovill Mfg Co, 99 Mill St, Waterbury 91, Conn.	Indus. Air Equip	Yes	Yes
Scranton Pump Works –Condenser Service and Engineering Co, Inc, 95 River St, Hoboken, N. J.	Pumps	Yes	Yes
The "S-C" Regulator Mfg Co. –The Swartwout Co, Cleveland, Ohio	Feedwater Regulators, Governors, Control Valves	Yes	Yes
The Shone Co. –Yeomans Bros Co, 1433 N Dayton, Chicago 22, Illinois	Pneu. Sewage Ejectors	Yes	Yes
Simplex Ejector & Aerator Corp –Yeomans Bros Co, 1433 N Dayton, Chicago 22, Illinois	Sewage Equip	Yes	Yes
Smoot Engineering Corp. –Republic Flow Meters Co, 2222 Diversey Parkway, Chicago, Ill.	Controls	Yes	Yes
Southwark Foundry & Machine Co –Baldwin Locomotive Works Philadelphia 2, Pa.	Hydraulic Machinery	Yes	Yes
***Sprague Div. General Electric Co.** –Shepard Niles Crane & Hoist Corp, 410 Schuyler Ave, Montour Falls, New York	Elec. Hoists	Yes	Yes
Standard Steam Turbine Co. –Murray Iron Wks Co, 1106 Wash. St, Burlington, Iowa	Steam Turbines	No	Yes
Staples Manufacturing Co –Staples & Pfeiffer, 528 Bryant St, San Francisco 7, Cal.	Strainers	Yes	Yes
Star Brass Mfg Co., Gauge Div. –Williams & Hussey Machine Co, Wilton, New Hampshire	Gauges	Yes	Yes
Star Brass Mfg. Co, Valve Div. –Kunkle Valve Co, 119-121 S Clinton St, Fort Wayne 2, Ind.	Valves	Yes	Yes
Star Electric Motor Co –Star-Kimble Mfg Co, Div, Miehle Printing Press Co, 200 Bloomfield Ave, Bloomfield, N.J.	Motors	Yes	Yes
Staynew Filter Co. –Dollinger Corp, 20 Centre Park, Rochester, N. Y.	Filters	Yes	Yes
Sterling Pump Company –Peerless Pump Div, Food Machinery Corp, 301 West Avenue, 26, Los Angeles, California	Pump & Water Systems	No	Yes
Stirling Consolidated Boiler Co. –The Babcock & Wilcox Co, 85 Liberty St, New York, N. Y.	Boilers	Yes	Yes
***B F Sturtevant Co, Cast Iron Economizer Div.** –Green Fuel Economizer Co, Inc, 627 Main Street, Beacon, N.Y.	Economizers	Yes	Yes
Sullivan Machinery Co –Joy Mfg Co, Oliver Bldg, Pittsburgh 22, Pa.	Air Compressors	Yes	Yes
Sundh Electric Co. –The Clark Controller Co, 1146 E 152nd St, Cleveland, Ohio	Elec. Controls	Yes	Yes
***Superior Eng. Div, Nat'l Supply Co.** –Sterling Engine Co, 1270 Niagara St, Buffalo 13, N. Y.	Models AB & DB Diesels	Yes	Yes
Swendeman, Inc. –Leavitt Machine Co, 10 E River St, Orange, Mass.	Traps	Yes	Yes
Thermidaire Corp –E K Campbell Heating Co, 1809 Manchester Ave, Kansas City, Mo.	Heating Units	Yes	Yes
Thomas Machine Co. –Shingle & Gibb Co, 5400 Grays Ave, Philadelphia, Pa.	Conveyors	Yes	Yes
Time-O-Stat Controls Co. –Minneapolis-Honeywell Regulator Co, 2753 Fourth Ave, S, Minneapolis, Minnesota	Heating Controls	No	No
Titusville Forge Co. –Titusville Iron Wks Div, Struthers-Wells Corp, Titusville, Pa.	Forgings	Yes	Yes
Titusville Iron Wks Co. –Titusville Iron Wks Div, Struthers-Wells Corp, Titusville, Pa.	Boilers, Pumps, Tanks	Yes	Yes
Tolhurst Machine Works –American Machine & Metals, Inc, East Moline, Ill.	Centrifugal Extractors	Yes	Yes
***Torrington Manufacturing Co.** –Manzel Brothers Co, 315 Babcock St, Buffalo 10, N. Y.	Lubricators	No	Yes
Traylor Vibrator Co –Jeffrey Mfg Co, 932-99 N Fourth St, Columbus 16, Ohio	Conveyors	Yes	Yes
Trumbull-Vanderpool Company –Cutler-Hammer, Inc, 315 N 12th St, Milwaukee, Wisc.	Safety Switches Control Panels	No	No
Underfeed Stoker Co of America –Riley Stoker Corp, 9 Neponset St, Worcester, Mass.	Stokers	Yes	Yes
Union Electric Mfg Co. –Cutler-Hammer, Inc, 315 N 12th St, Milwaukee, Wisc.	Motor Controls	No	Yes
United Cinephone Corp. –Ripley Co, Inc, Factory St, Middletown, Conn.	Electronic Controls	Yes	Yes
United Machinery and Mfg Co. –Riley Stoker Corp, 9 Neponset St, Worcester, Mass.	Stokers	Yes	Yes
United States Gauge Co. –American Machine & Metals, Inc, East Moline, Illinois	Gauges	Yes	Yes
The Unit Heater & Cooler Co. –D. J. Murray Mfg Co, Wausau, Wisc.	Unit Heaters	Yes	Yes
The Vaile Kimes Co –McKays Co, 473 Cleveland Ave N, St Paul 4, Minn.	Water Pumps & Systems	Ye	Yes
Valve Maintenance Co –Boiler Equipment Trust, Main St, Amherst, Mass.	Valves	Yes	Yes
The Van Dorn Elec Tool Co. –The Van Dorn Elec Tool Co Div. The Black & Decker Mfg Co, 600 E Pa. Ave, Towson 4, Md.	Portable Elec Tools	Yes	Yes
Voss Ice Machine Works –Voss Machine Wks, 242 E 122nd St, New York, N. Y.	Compressors	Yes	Yes
Walsh Weidner Boiler Co. –Combustion Engrg-Superheater, Inc. 200 Madison Ave, New York, N. Y.	Boilers	No	Yes
Wappet, Inc. –Mall Tool Co, 7728 South Chicago Ave, Chicago, Ill.	Elec Tools	Yes	Yes
Warnock Mfg. Co. –Lowell Wrench Co, Worcester 8, Mass.	Pipe Wrenches	Yes	Yes
Waterfilm Boilers, Inc –L O Koven & Brother, Inc, 154 Ogden Ave, Jersey City 7, N.J.	Low Pressure Heating Boilers, Hot Water Heaters	Yes	Yes
Weeks Merit System –Columbia Machine Co, 217 Conant St, Pawtucket, R.I.	Combustion Control Systems	Yes	Yes
Wescott Valve Co. –Walworth Co, 60 E 42nd St, New York, N. Y.	Steel Valves & Fittings	Yes	Yes
Wheeler Condenser & Engrg Co. –Foster Wheeler Corp, 165 Broadway, New York, N. Y.	Condensers	No	Yes
Whitcomb Locomotive Co –Baldwin Locomotive Works, Philadelphia 2, Pa.	Industrial Locomotives	Yes	Yes
D W Whitehead Mfg Corp –L O Koven & Brother Inc, 154 Ogden Ave, Jersey City 7, N.J.	Hot Water Heaters	Yes	Yes
***The Whitin Machine Works** –Troy Engine & Machine Co, Troy, Pa.	Steam Engines	Yes	Yes
D. E. Whiton Machine Co. –The Whiton Machine Co, New London, Conn.	Steam Turbines	Yes	Yes
Wilbraham Green Blower Co –Roots-Connersville Blower Corp 900 W Mount St, Connersville, Ind.	Blowers, Gas Pumps, Meters	Yes	Yes
Winton Engine Co –Cleveland Diesel Engine Div, General Motors Corp, 2160 W 106th St, Cleveland 11, O.	Diesel Engines	Yes	Yes
Yaxley Mfg Co. –P. R. Mallory & Co, Inc, Mallory Bldg, Indianapolis, Ind.	Switches, Controls	Yes	Yes
Yeager Mfg Co –Homestead Valve Mfg Co, P O Box 210, Carnegie, Pa.	Steam Cleaners	Yes	Yes
York Oil Burner Co. –York Shipley, Inc, York, Pa.	Oil Burners	Yes	Yes
The Youngstown Steel Products Co. –Clayton Mark & Co, 1900 Dempster St, Evanston, Ill.	Unions	Yes	No

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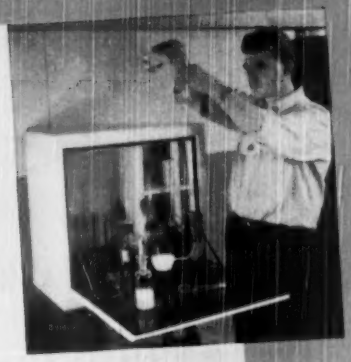

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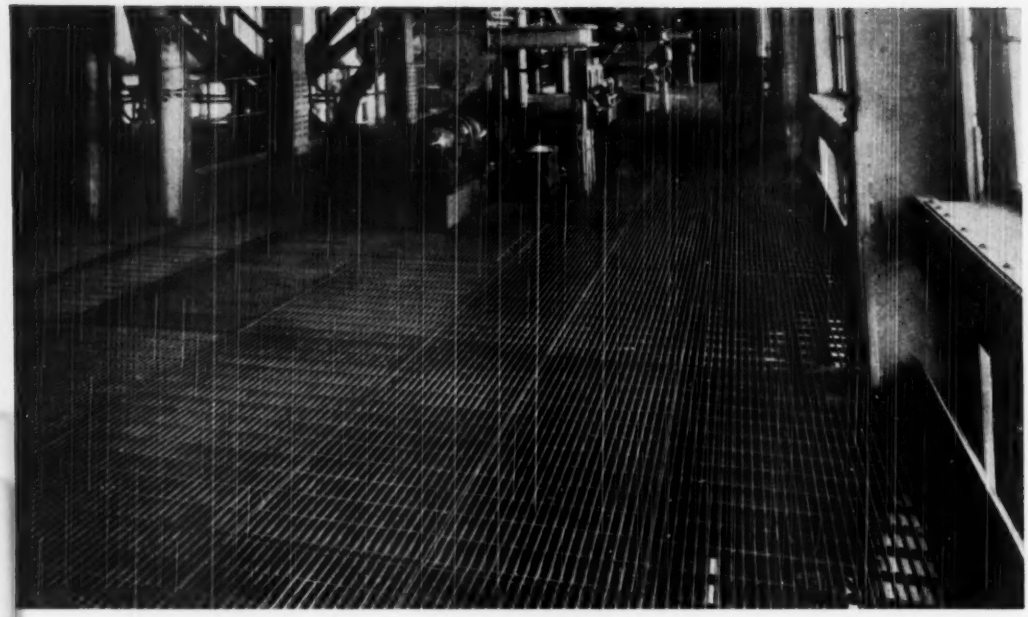

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- no welds, with residual stresses that lead to warping.

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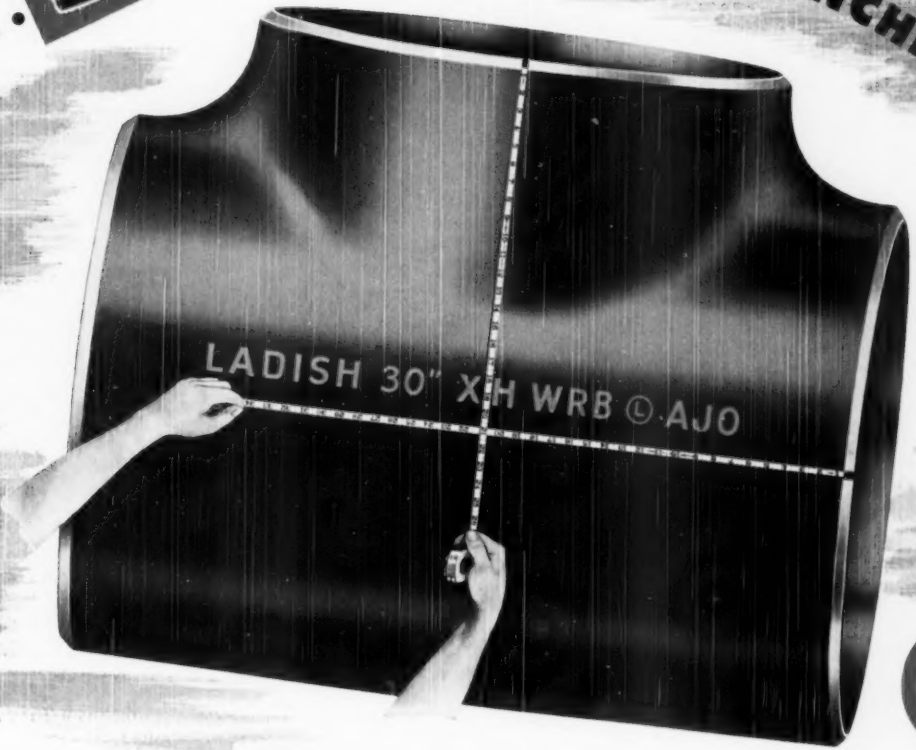
Architectural Grilles
Mitco Open Steel Flooring, "Shur-Site" Treads and Armorgrids

HENDRICK
Manufacturing Company
46 DUNDAFF STREET, CARBONDALE, PENNA.
Sales Offices In Principal Cities

full branch tees

½ INCH THROUGH 30 INCHES



TO MARK PROGRESS

ANOTHER IMPORTANT DEVELOPMENT in the LADISH LINE of

Controlled Quality FITTINGS

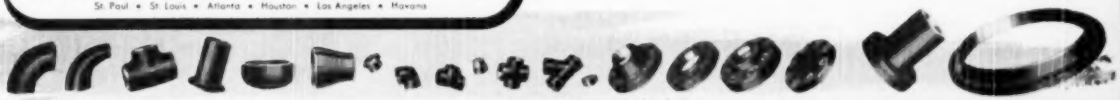
THE COMPLETE FITTINGS LINE
PRODUCED UNDER ONE ROOF...ONE RESPONSIBILITY

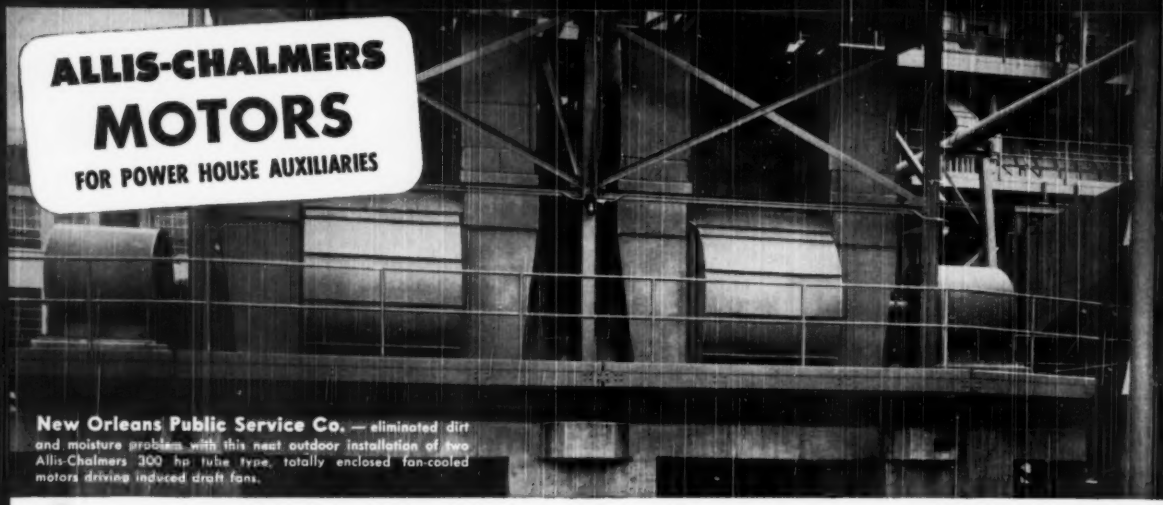
LADISH CO.

CUDAHY, WISCONSIN
MILWAUKEE SUBURB

DISTRICT OFFICES: New York • Buffalo • Pittsburgh • Philadelphia • Cleveland • Chicago
St. Paul • St. Louis • Atlanta • Houston • Los Angeles • Havana

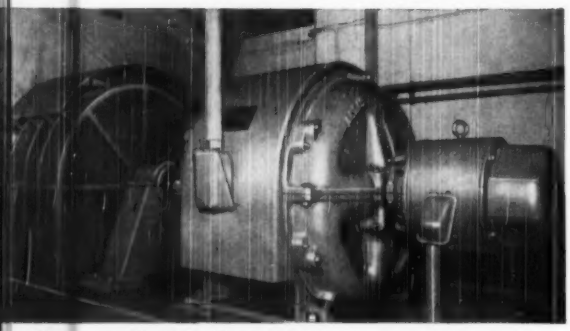
To increase safety, ease of installation and welding accessibility . . . Ladish Welding Tees have Full Branch Outlets with identical center-to-end dimension of branch and run as is required for each size *through 30 inches.* Scientific metal distribution . . . pioneered by Ladish . . . adds extra protection by equalizing stress over the entire fitting and assuring maximum strength in every cross section.





New Orleans Public Service Co. — eliminated dirt and moisture problems with this neat outdoor installation of two Allis-Chalmers 300 hp tube type, totally enclosed fan-cooled motors driving induced draft fans.

Motor Reliability For Toughest Jobs!



Potomac Electric Power Co. — drives induced draft fan through an electric coupling with this 400 hp drip-proof Allis-Chalmers motor.

HERE ARE REASONS why utilities like these all over the country are using Allis-Chalmers motors for their auxiliary drives.

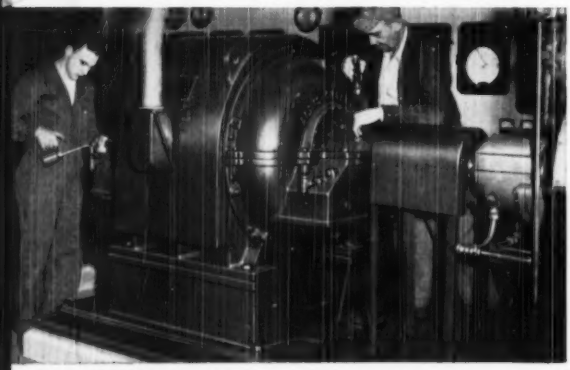
First, motors are furnished in every needed type and size. In addition, each motor has features to assure the reliability that power plants need. For example: two pole motors have a pressure vent arrangement in the bearings to prevent oil leakage into the stator in spite of the high speed of the motor.

The tube type, totally enclosed fan-cooled motor has straight heat exchange tubes which are self cleaning under practically all conditions and make the motor ideal for outdoor locations.

Extra varnish treatment is provided in all power house motors to resist moisture and acids — assure long life.

Allis-Chalmers is equipped to build the complete motor-pump-control package. If you intend to modernize or enlarge your facilities, it will pay you to specify Allis-Chalmers. Call your nearby A-C Sales Office for further information. A-3084

ALLIS-CHALMERS, 952A SO. 70 ST.
MILWAUKEE, WIS.



Kentucky Utilities Co. — uses two of these highly reliable Allis-Chalmers 700 hp two pole motors to drive high pressure boiler feed pumps.

Toledo Edison Co. — drives condenser pumps with these two 400 hp vertical cage motors.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

POWER

PHILIP W SWAIN, EDITOR • MID-JUNE, 1950 • ESTABLISHED IN 1882

Buyers' Guide—1950

POWER'S regular monthly issues serve a double purpose. First, they help the reader build a solid foundation for his daily job of managing the power services—a foundation of technical facts and tested techniques.

Second, they tell you each month what's new in power equipment and in power-field commercial literature.

One thing more is needed to insure a complete information service to responsible power engineers—this annual *Buyers' Guide*, published independently of the regular June issue.

Month by month a given reader will find that certain equipment items excite his interest as devices he could profitably apply in his own plant some day. Yet, more often than not, the time won't be ripe for action.

Later, when his power plans have taken shape, he can use this book to compare the latest devices offered for his purpose or to get a list of makers of similar equipment that might meet his needs.

So here, power engineers everywhere, is your *Buyers' Guide* for 1950. In it you will find:

1. Review of Selected New Equipment—items that ran in regular issues of POWER from July 1949 to June 1950.
2. Review of Selected New Bulletins and Catalogs.
3. Directory of over 400 Manufacturers of Power Equipment, arranged according to product.
4. Index to Former Manufacturers, listing companies that have been sold or absorbed, so you can find where to turn to get a spare part for that older machine.

In addition to the above, you will find post cards for your convenience in ordering catalogs and additional information.

Here is a reference book you will want to keep on your desk for constant use as a tool of your power-engineering job. We hope it serves its purpose well.

PHIL SWAIN

Air Conditioning, Heating, Refrigerating and Ventilating Equipment

PROCESS HEAT **P111**

Self-contained, direct-fired industrial heating unit, *Thermobloc*, is available in a new design for drying lacquers, finishes or any material needing temperatures up to 500 F.

Prat-Daniel Corp, East Port Chester, Conn.

AIR FILTER **P312**

Refill, glass-fiber air filter comes in reusable frame for all types of forced air-heating, ventilating and air-conditioning systems.

When the filter pack has accepted its capacity dust load, remove the light metal frame from the filter bank, unfasten, and discard the used pack. Put in a fresh pack, retape the frame, and return unit to filter bank.

Glassfloss Corp, Dept RF, Commerce Bldg, New York 17, N. Y.

P1040 • ROOF VENTILATOR —

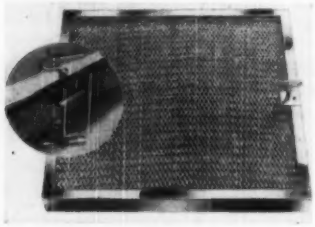
Known as *Valvent*, this ventilator is made in five throat sizes—12, 18, 24, 30 and 36 in. Big feature is combination damper and inverted-cone air guide that is said to guide outgoing air with least possible friction and permit any degree of opening desired (or tight closed).

Swartwout Co, Cleveland 12, Ohio.

AIR OUTLET **P306**

Draftless air distribution plus regulation of air volume can be had in a single unit, the *Uni-Flo* grille, with an integral volume control.

Barber Colman Co, Rockford, Ill.



P1050 • FILTER LOCK—The handle lock is designed for installation on *R-P Alumaloy* grease and industrial air filters. Lock provides rattle-free fastening automatically with a helical spring.

Once assembled, a quarter turn of the handle in either direction moves the latch rod over a built-in cam, which lifts the rod to clear any commonly encountered holding frame flange.

Research Products Corp, Madison 10, Wis.

GAS BOOSTER **P317**

New product features special gas exhausters fitted on the drive side with a gas-tight high-speed oil-lubricated rotary seal through which the drive shaft connects to the impeller.

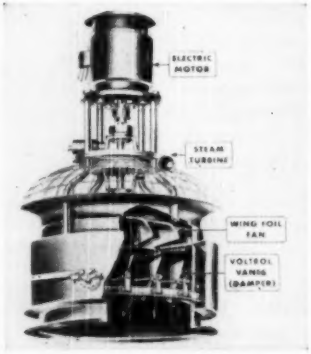
Inlet and outlet are cut with standard pipe threads; a gas-tight connection. Approved compression-type couplings can be had at additional cost. Booster is built to allow gas flow through the unit when booster is not operating.

U.S. Air Conditioning Corp, 3377 Como Ave, SE, Minneapolis 14, Minn.

P1078 • AIR DIFFUSER—A modification of the *Kno-Draft* adjustable air diffuser permits its combination with a pendant light fixture so both may be hung from the same spot on the ceiling.

Diffuser retains all its functional features and can be supplied with or without an air volume damper. The angle of air discharge can still be adjusted. Modification may be made on any size or type of diffuser.

W B Connor Engrg Co, 114 E 32nd St, New York 16, N.Y.



P1039 • DUAL-DRIVE BLOWER —

Forced-draft axial-flow blower incorporates a combined electric-motor and steam-turbine drive. Change from one drive to another may be made at will.

Basic unit is Wing Type "*R*" turbine blower, with a totally enclosed, dustproof motor connected to extension of turbine shaft. Choice of drive may be governed by heat balance, more economical operating costs, or emergencies affecting source of power. To operate, simply throw the switch for electric drive or turn a couple of valves for steam drive. Wide range of control is available with both drives.

L J Wing Mfg Co, 50 Seventh Ave, New York 11, N.Y.

P1132 • LIQUID COOLER—Packaged cooler in 5- to 100-ton sizes contains a complete refrigeration cycle. Unit is fully shop assembled.

The package has a heavy-duty Freon compressor, motor and starter, necessary controls to maintain operation, a shell-and-tube liquid cooler and refrigerant condenser.

Doyle & Roth Mfg Co, Foot of 23rd St, Brooklyn 32, N.Y.

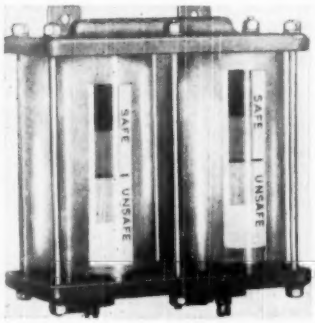
P1141 • AIR AND STEAM FILTERS —Type *RA* purifier removes oil, water, pipe scale, etc. from compressed air and steam lines. It may be used on steam lines up to 400 psi and 650 F and for compressed air or gas not exceeding 800 psi and 100 F non-shock service.

Centrifix Corp, 3029 Prospect Ave, Cleveland 15, Ohio.

P1125 • MODULAR COOLER—Stainless steel, aluminum or electrolytically zinc-coated steel facing adhesively bonded to plywood modules, called *Amorply* panels, enables assembly of walk-in coolers of any size at the plant location where refrigeration is desired.

Such a cooler has the advantages of: (1) light weight, efficient use of floor space (2) simplicity of design and assembly or disassembly (3) an impervious barrier to transfer of water vapor (4) 4 in. thickness of insulation in panel cavity. Standard modular panels are available for coolers 8 ft high; 8, 10 or 12 ft wide and, within 2-ft multiples, any length desired.

United States Plywood Corp, Weldwood Bldg, 55 W 44th St, New York 18, N.Y.



P1102 • AIR-FILTER DEHYDRATOR with two transparent tubes, 60 cu in. volume, contains Grade A silica gel fill, which changes color as it absorbs moisture.

Romec Div, Lear Inc, Elyria, Ohio.

REVIEW OF NEW PLANT EQUIPMENT—1950

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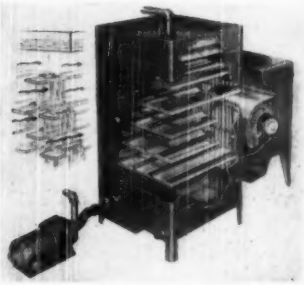


COOLING TOWERS P241

Compact, extra quiet, induced-draft cooling towers, *Type E*, of galvanized steel fit in well with small, packaged, watercooled air-conditioning and refrigeration condenser units.

Warm water from the condenser section of the refrigerating unit goes to a water-diffusion pan on top of the tower. Perforations in the floor of the diffusion pan let the water enter the cooling portion of the tower. Cascade deck surfaces break the fall of the water and set up a filming action for effective heat transfer.

A slow-speed belt-driven squirrel-cage blower draws air through the tower to bring about an air-to-water contact and evaporative cooling action.

Binks Mfg Co, 3122 Carroll Ave, Chicago 12, Ill.

P1226 • REFRIGERATION TUBE—Packaged copper refrigeration tube comes in standard sizes from ⅛ to ¾ in. OD, in 50-ft coils, dehydrated and sealed.

Tube is said to be more uniform in size, has a uniformly soft temper, and is easier to bend and flare.

Bridgeport Brass Co, 30 Grand St, Bridgeport 2, Conn.

CONTROLLED HUMIDITY P113

Compact, totally enclosed-unit air-conditioning system available in a range of sizes controls temperature and humidity from 1000 to 20,000 cfm of air at room temperature.

Niagara Blower Co, 425 Frankin St, Buffao 2, N. Y.

AIR DIFFUSER P420

Acoustical, ceiling air diffuser is joined with a square panel of lightweight metal to blend in with ceiling. Diffuser retains all standard features of the company's *Kno-Draft* line of adjustable air-discharge and air-volume control units.

W B Connor Engrg Corp, 116 E. 32nd St, New York 16, N. Y.

QUICK FREEZER P126

Continuous packaged quick freezer, *Freez-Pak*, is capable of handling 4000 pound-packages of frozen food per hour or hardening 8000 pint packages of ice cream in a continuous cycle.

Space required for a *Freez-Pak* of 4000 lb per hr capacity is 22 ft long by 19 ft, 11 in. wide by 8 ft, 9 in. high for loading and discharge section.

Freezing Equipment Sales, Inc, 415 W Market St, York, Pa.

AMMONIA COMPRESSORS P425

High-speed reciprocating, 15- to 275-hp, VW compressors have been made available for ammonia application. They are designed with 4, 6, 8, 12 and 16 cylinders and for direct connection to motors.

York Corp, York, Pa.

P1146 • AIR FILTER—*Condensifilter*, designed for instrument air service, filters and dehydrates air and automatically discharges the condensate.

Outer case is 8-in. steel pipe, 51 in. long. Air enters bottom through center shaft and passes over 68 ft of ⅜-in. copper tubing cooling coil. After passing over cooler, air enters a 7-layer Canton flannel filter.

Hankison Corp, 1501 Beaver Ave, Pittsburgh 12, Pa.

TURBO-BLOWERS P316

Simple, reliable, efficient and economical turbo-blowers—single stage for low pressure, multistage for pressure above 24 oz.

All sizes operate at 3450 rpm. V-belt drives are available for larger units and units other than 60-cycle current. Standard, large-sized pillow blocks with double-row

self-aligning ball bearings are used. Sparkproof corrosion-resistant aluminum impeller is furnished for all turbo-blowers.

U.S. Air Conditioning Corp, 3377 Como Ave, SE, Minneapolis 14, Minn.

P1174 • HUMIDIFIER — New Model 30 industrial humidifier employs 230 watts of electrical energy to vaporize about 3 gal per hr of water.

All that is needed are connections to city water and electric energy. There are no compressors, air or drain piping or duct work. Units may be used in multiple if desired.

Walton Laboratories, Irvington 11, N.J.

WE'LL GET YOU MORE DETAILS
if you send in card on page 181

P1229 • UNIT HEATER—Vertical delivery from 9 to 25 ft above the floor can be had with one of six models in this manufacturer's new line.

Based on the standard rating of 2-lb steam supply and 60-F, entering-air-temperature units range from 50,800 to 257,000 Btu per hr output. A patented internal cooling leg and a close connection of a thermostatic trap give continuous drainage and full heating capacity.

Grinnell Co, 277 West Exchange St, Providence 1, R. I.

ROOM CONDITIONER P620

Window-type, wood-grain-finish, ¾-ton, room air conditioner with instant-change filters and sealed-in compressor. Unit reaches only 11¾ in. into the room. It has an adjustable fresh-air intake and ventilation, with or without cooling.

Two controls on top of the cabinet make this adjustment possible. One adjusts fresh air. The second, a 3-position knob, controls (1) cooling and ventilating (2) ventilating only (3) both when off.

United States Air Conditioning Corp, 3302 Como Ave, S.E., Minneapolis, Minn.

ROOM CONDITIONERS P426

Six hermetically-sealed room air conditioners are now in production. They range from Models 12 and 13, ½- and ¾-hp. window-sill units, through models 33 and 100, ¾ and 1-hp console units, to models 150 and 200, 1- and 1½-hp commercial and home consoles.

York Corp, York, Pa.

UNIT HEATER P524

Self-contained, fully automatic, gas unit heater has easier accessibility for servicing; is more compact in space requirements being 16% shorter; is finished with Perlite, a soft, neutral gray-green metallic paint that has a heavier, more durable, protective coat than ordinary paints produce.

Reznor Mfg Co, Mercer, Pa.

AIR COMPRESSOR P384

Portable Mobile-Air *IKA-500* compressor has a capacity of 500 cfm and uses diesel-engine drive.

Heavy-duty *UD-24* engine starts as a low-compression gasoline engine and after warm-up is shifted to full diesel operation.

Full 500-cfm capacity is handled at rated 100 psi, and floating-speed regulator adjusts speed according to load. Compressor is a 2-stage air-cooled unit with *Hydro-Shift Flex-Disc* clutch and Channel valves.

Ingersoll-Rand Co, 11 Broadway, New York 4, N. Y.

P1053 • COMPRESSOR CONTROL —*UL-83 Drill-More* regulator automatically varies compressor speed by adjusting the engine governor spring.

UL-83 regulator is much simpler in operation and easier to adjust than the original multispeed regulator used on all Ingersoll-Rand 105-cfm and larger portable compressors since 1939. Average air pressures are 15 to 20 psi higher, and savings in fuel are 40%. Regulator varies compressor capacity throughout entire speed range without speed steps or cycling.

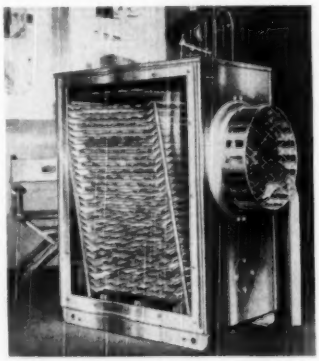
Ingersoll-Rand Co, Phillipsburg, N.J.

AIR DIFFUSER P568

Adjustable air deflection from vertical to horizontal feature Model JC *Venturi-Flo* air-supply outlet, which is a combination supply-and-exhaust unit.

Ceiling outlet, supplied in a gray prime coat or a baked *metalescent* aluminum finish, mixes room and supply air for rapid temperature balance.

Barber Colman Co, Rockford, Ill.



COOLING TOWERS P533

An addition of a 20-ton unit to the company's packaged *Aquatower* line of cooling towers will feature the new improvements carried by the rest of the line.

All tower interiors are rubber-lined. A new deep-pitch fan operates at about half the usual speed to give quiet operation.

Marley Co, Inc, Fairfax & Marley Rds, Kansas City 15, Kan.

WALL-FIN RADIATOR P617

Multilength, *Wall-Fin* radiators in standard lengths from 2 to 12 ft in 6-in. increments are made up in steel, nonferrous copper or aluminum. Easily installed cabinets in unit lengths lock together with push-in rivets and a new hanger that rides with expansion and contraction of the heating element.

Trane Co, LaCrosse, Wis.

ADSORBENT REACTIVATION P534

Reversible fan or blower provides a simple method of reversing flow of gas or air when changing from a reactivating to a cooling cycle in the use of solid adsorbents as dehumidifiers.

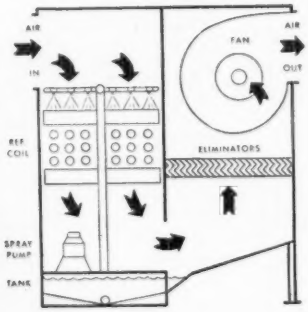
Heretofore a unidirectional fan or blower along with large and expensive reversing valves and ducts had to be used. In this way the air or gas for cooling in *Lectrodryer* equipment can be put through a closed cycle, and not introduce additional moisture into the system.

Pittsburgh Lectrodryer Corp, PO Box 1766, Pittsburgh 30, Pa.

WEATHERPROOF LOUVER P627

Heavy-duty frames and overlapping galvanized-steel blades, weatherproof in both open and closed positions, can be fitted for openings from as small as 11⅞ in. high by 12 in. wide to 74¾ in. by 48 in. By varying number of blades used and the frame-size, the *Airlouver* gives a pleasing pattern in adjustable or fixed designs.

Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio.



SPRAY COOLERS P567

Five unit sizes of spray fan coolers, ranging from 1680- to 11,000-cfm capacity, for refrigerated rooms, have been added to the lines.

Fan section is on side of the unit rather than on top. Air enters the spray section at top, is chilled in passing down through the spray and over the refrigerated coils, enters the fan suction at the bottom and is discharged from the side at top of fan suction. Maximum setting height is 72 in. Floor space ranges from 16 to 72 sq ft.

Niagara Blower Co, 405 Lexington Ave, New York 17, N. Y.

BOILERS, FIRING EQUIPMENT and related products

P1224 • BOILER - STOKER COMBINATION—Steam radiation from 2190 to 8500 sq ft can be had from *Unitbilt* combination underfeed stoker and boilers.

Stoker ironwork is factory installed. After the boiler has been set on location the stoker driver mechanism goes in. Clean-out doors are provided in front and rear of the base.

Brownell Co, 306 N Findlay St, Dayton 1, Ohio.

P1221 • GAS-FIRED BOILER—Compact, light-weight, quick-heating, gas-fired boiler contains only 1.44 gal of water. *Ruudiator* has an AGA output rating of 1067 sq ft EDR with gas and 800 sq ft for liquefied petroleum gas.

Waterways are nonferrous and rustproof. Unit operates on all types of forced-flow hot-water heating. No. 1067 is built for gas fuels, and No. 800 for liquefied petroleum gas.

Ruud Mfg Co, 2934 Smallman St, Pittsburgh 1, Pa.

GAS BURNERS P110

Any combustible mixture of gas can be burned over a wide range of mixture pressures from 0.1 in. of water to 1½ psi with *Pyronic* tunnel gas burner.

Available in capacities from 6000 to 1,660,000 Btu per hr, burner operates without special adjustment anywhere in the 450-3100 Btu gas range. Because of the wide mixture pressure allowances, the burner can serve with a low turn down or high pressure for high temperature duty.

Bryant Industrial Div, Affiliated Gas Equipment, Inc, 1020 Louden Rd, Cleveland 10, Ohio.

DUST COLLECTOR P224

Self-cleaning paddle-wheel fan driven by a 5-hp motor removes dust, lint, shavings from industrial processes into *Model 30 N 50 Dustkop* dust collector.

Air velocity reaches 10,400 ft per min to pull 3630 cfm. Model takes up 28x49 in. floor space and stands 82 in. high.

Aget-Detroit Co, Ann Arbor, Mich.

DUST COLLECTOR P129

Highly efficient, cyclone type of dust separation results from the new *Valmont Type S*, which has a relatively small diameter and longer tube length.

Gas is introduced in a deep, narrow ribbon through a single-inlet slot so dust particles can travel only a very small horizontal distance before meeting the precipitating wall. In the time required for the gas to travel the length of the tube a higher percentage of fines than heretofore can be pulled out of the gas stream. The center outlet tube has been reduced in size to match more closely the dust-free vortex produced by the whirling gas.

Prat-Daniel Corp, East Port Chester, Conn.

P1024 • FURNACE WALLS — Suspended furnace-wall enclosures, used with or without a steel casing, are universal in application for both furnace areas and convection sections of boiler.

Wall can be so insulated that face temperature is reduced to about 20 deg above ambient. Downcomers or feeder tubes can be concealed within the wall insulation. All refractory shapes are of a modular design, refractory thicknesses being 3 and 4½ in.

George P Reintjes Co, 2517-19 Jefferson St, Kansas City, Mo.

P1025 • CONTINUOUS BLOWDOWN—Packet type, continuous blowdown, designed for small plants under 20,000 lb per hr steaming capacity, gives automatic control of boiler-water concentration.

Simple control establishes the amount of continuous blowdown in proportion to the quantity of makeup water and its impurities. Heat from the blowdown water is absorbed in a heat exchanger and returned to the boiler cycle.

Henszey Co, Watertown, Wis.

P1052 • WATER FEEDER—No. 21 and 121 makeup water feeders are designed specially for service on the receiving tanks of boiler return systems. Straight-thrust cam-and-roller valve action provides tight closure against water pressures up to 150 psi.

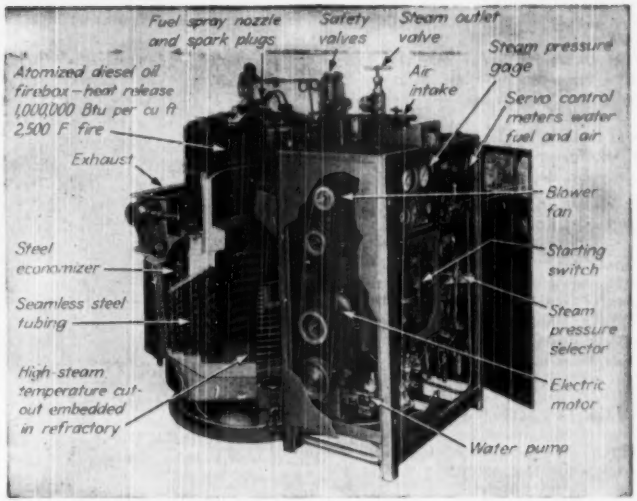
McDonnell & Miller Inc, 3500 N Spaulding Ave, Chicago 18, Ill.

OIL BURNER P435

Single burner with built-in dual pump and reservoir, the AR-144, size 10, has a compensating viscosity-control valve, thermostatically controlled electric pre-heater, dual ignition, all in one unit. Burner is rated at 210 gal per hr of No. 6 oil, enough for 24,400 lb of steam per hr.

Ray Oil Burner Co, 410 Bernal Ave, San Francisco 12, Calif.

HERE'S A NEW QUICK-STEAMER



FULL WORKING PRESSURES are developed in less than two minutes with series of sizes that give from 75- to 600-psi steam at rates from 310 to 15,500 lb per hr

P 301 • Over 500 ft of patented steel coils surround the furnace chamber of the vapor steam generator, photo above. In this model, the OK-2500, slightly over 7-gal-of-water-per-min flow through the coils at a thermal efficiency of 80 to 83% delivering 99%-quality dry steam. Designs can give steam from 75 to 600 psi in capacities from 310 to over 15,500 lb per hr for sustained working periods of time.

Descaling the steam generator requires circulating a 25% solution of inhibited muriatic acid through the coils, using an impeller or piston-type pump followed by a water rinse and blowing-down with steam. All this takes only about two hours.

Vapor Heating Corp, Railway Exchange, Chicago 4, Ill.

P1119 • SPREADER STOKER — Cheapest sizes of coal or wood chips and sawdust may be burned on the Fyr-Feeder spreader stoker.

A worm feeds fuel from an overhead hopper to a point where it comes in contact with a stream of low-pressure air. The air lifts fuel out over grate with the fines burning in suspension and heavier pieces falling to grate.

Fyr-Feeder Engineers Div, American Coal Burner Co, 18 East Erie St, Chicago 11, Ill.

FLYASH COLLECTOR P439

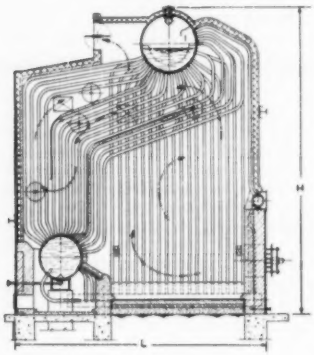
Small-boiler, low-resistance mechanical flyash collector, the LR, serves the small steam plant of 3500- to 7000-lb-per-hr capacity. Complete information is in the LR bulletin, available through this company.

Buell Engineering Co, 70 Pine St, New York 5, N. Y.

P1122 • LOW-WATER CUTOFF— Non-corrosive working parts isolated from heat of float chamber features No. 63 low-water cutoff for automatically fired hot-water boilers carrying up to 50 psi.

Device is designed to stop the burner in event of low water. It uses a 1-in. equalizing pipe, a method recommended for hot-water boilers. No. 63 may also be adapted to automatically fired steam boilers in the middle range of pressures from 20 to 50 psi.

McDonnell & Miller, Inc, 3500 N. Spaulding Ave, Chicago 18, Ill.

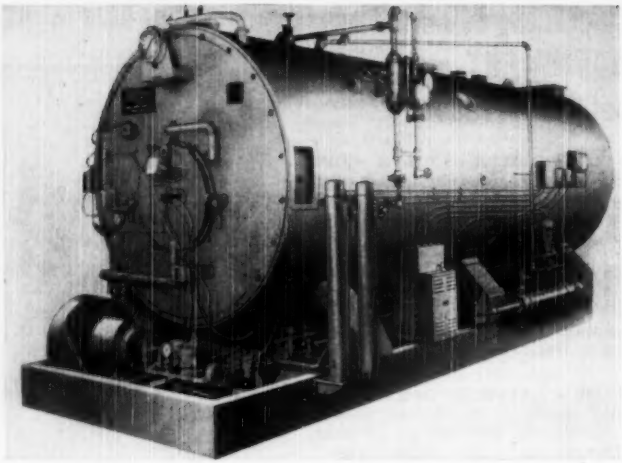


STANDARD BOILERS P120

New line, *Type C, of* 2-drum water-tube boilers ranging from 10,000- to 45,000-lb-per-hr steaming capacity are now available.

New boilers feature a bent-tube design that is compact and symmetrical. Gas enters the tube bank across the full width of the furnace. Superheater, air heater, and economizer can be furnished if desired. Firing equipment, such as oil, coal or gas, may be supplied.

Springfield Boiler Co, 1901 East Capitol Ave, Springfield, Ill.

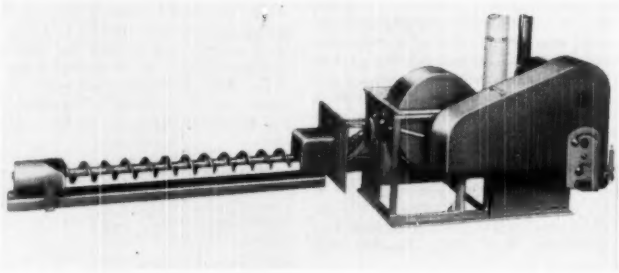


STEAM GENERATOR P432

Further addition to company's automatic, packaged boilers, the new 17,500-lb-per-hr, *Amesteam*, is available in pressures from 15 to 200 psi, for firing with oil or gas.

Unit is complete, ready for installation. Connections, to steam, water, fuel or electric lines, breeching or stack, make the unit ready for operation. Furnace and tubes are so arranged that all heating surfaces get smooth flow of hot gases over them.

Ames Iron Works, Oswego, N. Y.



SPREADER STOKER P438

Complete firing system—from bunker pickup, drying and conveying to coal burning—features the Series 400 pneumatic spreader stokers.

Steam-size coal feeds direct from the coal bunker by a metering worm to a transfer housing. Here it meets a stream of air mixed with furnace gases and moves in the air stream to the furnace and the grates. Preheated fines burn in suspension, reducing cinder carry over.

Iron Fireman Mfg Co, 3170 W 106th St, Cleveland 11, Ohio.

LARGE-VOLUME BLOWERS P565

Seven low-pressure large-volume blowers, direct-connected or V-belt-driven, have been added to the 300 Series. Units are vibration free, with fabricated steel-plate cases and bases, fabricated aluminum impellers.

Four-ounce blowers give 4000 and 4700 cfm with 7½- and 10-hp motors, respectively. Eight-ounce designs give 2480, 4250, 4800 cfm with 10- 15- and 20-hp motors. Two 3600-rpm blowers with 50- and 60-hp motors put out 6000 and 7500 cfm.

North American Mfg Co, 4455 E. 71st St, Cleveland 5, Ohio.

P784 • DUST COLLECTOR—Hydrostatic precipitator cleans air by centrifugal force developed in an air stream by a fan and a thorough intermixing of water and dust-laden air, re-using the water without recirculation pumps or spray nozzles.

Design 2, Type *N Roto-Clone*, with capacities up to 48,000 cfm, maintains a low-pressure drop under operation from 50 to 120% of rating. All sizes are available in either manual clean-out, sludge ejector or hopper bottom.

American Air Filter Co, 215 Central Ave, Louisville, Ky.

ELECTRICAL CONTROLS Including motor starters, relays, voltage regulators, rheostats, switches, etc.

Turn to page 181 to order more information

ELECTRIC FLOAT-SWITCH P652
Explosionproof float-operated electric switch for water tanks and other liquid-storage systems. Model No. 65 can be used to make or break electrical circuits at either high or low levels. Float chamber is heavy cast iron, float is copper, float rod is brass and bellows are bronze.

Maximum body pressure is 40 lb. Device has underwriters' approval for use under Class I, Group C and D atmospheres.

McDonnell & Miller, Inc, 3500 N. Spaulding Ave, Chicago, 18, Ill.

COMBINATION STARTER P659
Magnetic starter with disconnect switch —fusible and nonfusible type. Compact motor starters are for use where a magnetic full-voltage starter coupled with disconnect means at starter location is preferred over separately mounted components.

Ward Leonard Electric Co, Mount Vernon, N. Y.

TIME-DELAY RELAY P661
Relay is for use with a separate motor starter and pushbutton station to provide automatic restarting of a motor after a momentary voltage fluctuation or power failure of a few seconds duration. If power failure is prolonged more than a few seconds, the relay circuit times out, disconnecting the motor from the line.

Square D Co, Industrial Controller Div, 4041 N. Richards St, Milwaukee 12, Wis.

P999 • MOTOR SPEED CONTROL—A simple, low-power, compact, single-unit speed control operates a 1/3 hp dc shunt motor from an ac line. Constant field voltage is supplied by a dry-disk rectifier. Armature voltage and speed are varied by an autotransformer feeding an electronic rectifier.

Smooth control is obtained from motor-rated speed down to practically zero.

General Radio Co, 275 Massachusetts Ave, Cambridge 39, Mass.

MOTOR STARTER P666
Ac, magnetic, nonreversing *De-ion Life-Linestarter* is designed for either across-the-line starting of squirrel-cage induction motors, or as a primary switch for wound-rotor induction motors. Starter has only one moving part, a lever balanced on a knife-edge bearing or center fulcrum.

Available in NEMA sizes 0 through 4, the *Life-Linestarter* can be applied to all integral horsepower motors up to 100 hp. It is supplied in standard ac-voltage ratings from 110 to 600 at frequencies of 60, 50 and 25 cycles, for 3-phase, 2-phase, 4-wire and single-phase operation.

Westinghouse Electric Corp, PO Box 2099 Pittsburgh 30, Pa.

PUMP PROTECTOR P632
In mechanical failure or lowering of water table, *Protectrol* automatically stops your pump, keeps it from starting until manually reset. Emergency conditions cause unit to sound an alarm and light a warning light.

Unit comes with an alarm silencer and automatic reset. Pushing manual reset button restores all circuits to regular operation. Time interval can be varied through a thermal time-delay unit.

Automatic Control Co, 1005 University Ave, St. Paul 4, Minn.

OVERCURRENT RELAY P161
An overcurrent relay provides adequate fault protection for distribution feeders. Usually when a feeder is re-energized after an extended outage the accumulation of loads causes an inrush current to flow. Type *IAC-77* relay takes care of this by having an extremely inverse time characteristic curve with a shape approximating those of power fuses and distribution cutouts.

New relay has the usual features of other overcurrent relays such as time dial, tapped coil, single contact with target-seal-in device and provision for instantaneous attachment.

General Electric Co, Schenectady, N.Y.

FLOAT CONTROLLER P508
No. 65 explosion-proof float-operated electric controller has been tested and approved by underwriters for use in Class 1, Group C atmospheres containing ethyl-ether vapors, ethylene, or cyclopropane. Also Class 1, Group D atmospheres containing gasoline, petroleum, naphtha, butane, etc.

McDonnell & Miller, Inc, 3500 N. Spaulding Ave, Chicago 18, Ill.

CONTROL CABLE P665
For 600-v operation and conductor operating temperatures of 168 F. Compared with conventional types of control cables polyethylene PNR is 25-30% smaller and 10-15% lighter.

Nylon is extruded over the polyethylene to add stability to increased ambient temperatures. There's a tough over-all sheath for the small diameter-control cable. It is chemically inert, and cable can be laid directly in acid or alkaline soils.

Rockbestos Products Corp, 550 Nicoll St, New Haven 4, Conn.

P897 • CONTROL AND MEASUREMENT—Designed to measure and control process variable such as temperature, voltage, current, pressure, speed, etc, unit is supplied with four SPDT switches to select six different switching sequences.

High resistance, fully compensated, direct-reading meter movement with Alnico V magnet is used where application falls in pyrometric range. Models using resistance thermometer measuring systems are available for low-temperature operation.

Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

P947 • CRANE HOIST CONTROL—Dc control is designed for use on whirley, revolver, gantry and overhead cranes in steel mills, shipyards, ore bridges, warehouses and on loading and unloading towers. This control provides power hoisting and power dynamic lowering, depending upon requirements of load on hook.

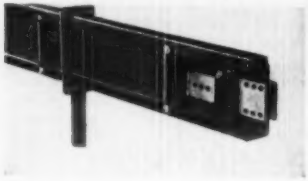
In addition, both overshoot and down drift are eliminated. When master switch is thrown rapidly from the off to any lowering position, with a load on the hook, motor speed does not overshoot. Since first hoisting point will hold rated load with no downward drift, the master switch needs only to be moved to second hoisting point to lift load. A spring-closed contactor provides a dynamic braking circuit, thus assuring a retarded lowering speed even if magnet brake fails to hold an excessive load.

General Electric Co, Schenectady 5, N.Y.

MOTOR-CONTROL CENTER P377
Standardized control center containing motor starters for centralized control of groups of machines. Units feature plug-in disconnects on line side.

All units are 20 in. wide by 20 in. deep, with heights in multiples of 14 in. for interchangeability in standard indoor structures either 76 or 90⅝ in. high. Individual starter units are baffled from each other for added safety. Provision is made to vent hot ionized gases created by short circuits.

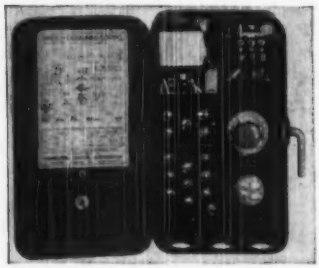
Westinghouse Electric Corp, Box 2099 Pittsburgh 30, Pa.



P723 • FEED-IN-DUCT—Unique feature of this bus system is splitting of one phase on a three-phase job so the split-bus is positioned on either side of remaining two phases. Solid ebonized asbestos is used between and around the buses.

This construction permits close spacing and electrical symmetry, for reduction of both energy loss and voltage drop.

Square D Co, 6060 Rivard St, Detroit.

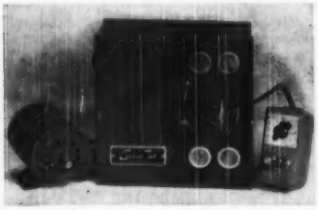


PROGRAMING CONTROL P221

Automatic starting and programing can be achieved for commercial gas and oil burners with the *Fireye 24PJ8*.

The control automatically starts the burner and programs the sequence of fuel-valve opening, post-ignition timing, priming and scavenging. It is used with electronic flame rod, *45JQ1*, or photoelectric scanner, *45PH5*, for continuous safeguarding against flame failure. A high-torque synchronous motor drives the timing cams.

Combustion Control Corp, 77 Broadway, Cambridge 42, Mass.



MOTOR SPEED-CONTROL P453

Thyratron-type speed-control system operates dc motors from an ac line. Shunt-wound 115-v motors from one-thousandth to one-tenth hp may be controlled over a speed range better than 50 to 1 with nearly constant speed versus torque regulation. Another model is available for operation from 220-v line to control shunt motors up to one-sixth hp.

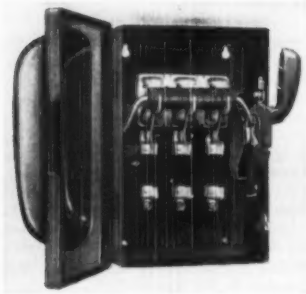
Servo-Tek Products Co, 4 Godwin Ave, Paterson, N.J.

PLATE-TYPE RHEOSTAT P154

Rheostat is designed for field control of dc shunt- or compound-wound motors, self-excited generators, exciters, separately excited generators and synchronous motors. It is suitable for paper, textile, machine-tool industries, as well as rotating-equipment builders.

Rheostat features adjustable stops that limit dial-switch movement at each end of travel. These stops are adjustable through a 90-degree angle, making it possible to adjust maximum and minimum resistance that can be cut in or out of the circuit.

General Electric Co, Schenectady 5, N. Y.



P1065 • SAFETY SWITCH—Three new safety switches are: (1) Type *A*, heavy-duty industrial service (2) Type *C*, standard-duty industrial service (3) Type *D*, general-purpose service. Current carrying parts are silver plated and blades are visible for quick checking of switch.

Magnetic plate in arc chamber cover adds to unusually high rupturing capacity. Non-tracking insulation is used in base. Units are available in 30- and 60-amp. sizes.

Square D Co, 6060 Rivard St, Detroit 11, Mich.

P1153 • ELECTRONIC RELAY—This electronic relay switch can operate on the condensation between two points close together, or a column of mercury. Units may be used as liquid-level controls without need for floats.

Coral Designers, P O Box 248, Forest Hills, N.Y.

P1161 • SAFETY SWITCH—For modern high-capacity industrial distribution systems, the *HCI* switch has an entirely new arc-quenching design and actuating mechanism. Both give it ability to break unusually heavy loads quickly and safely.

Unique arc-quenching feature uses magnetic repulsion action. Arcs formed by double-break contacts repel each other and drive against grid pins that cool and deionize them. Units are available in 30-, 60- and 100-amp sizes.

Trumbull Electric Mfg Co, Plainville, Conn.

P1158 • MOTOR STARTER—Type 371 starter is for service in chemical, coal handling and other industries where corrosive vapors or combustible dust-laden atmospheres are present. Device has its entire mechanism immersed in oil and is designed for use with squirrel cage and the primary of wound-rotor motors of 350 hp or less at 2.3 kv. It is actuated by a pilot device, such as pushbuttons, float or pressure switches.

Allis-Chalmers Mfg Co, Milwaukee, Wis.

P1162 • PLATING RECTIFIER—Selenium units form the core of this electroplating rectifier. Dc continuous output is 2000 amp at 6 v or 1000 amp at 12 v.

Each rectifier has a step-down transformer, rectifier, stack, cooling fan and magnetic contactor. Weighing 1000 lb, each unit is 63 in. high, 32 in. wide and 20 in. deep.

Electric Products Co, 1725 Clarkstone Rd, Cleveland 12, Ohio.

P1169 • HIGH-CURRENT RESISTOR—Suitable for meeting special requirements for lightness, compactness and reliability, *Multipath* resistor uses a lightweight mesh-type construction. Mesh is so proportioned and formed that it is always self-supporting and never shielded by insulators.

Exmet Electrical Corp, 59 Park Ave, New York, N.Y.

P1129 • WELDER CONTACTOR—Long life, high-speed operation for small-pot welding machines up to 10 kva, 220 v or 20 kva and 440 v, comes from use of rugged 50-amp welding contactor, Size *OW*.

Industrial Controller Div, Square D Co, Milwaukee 12, Wis.

P1150 • HIGH-VOLTAGE CONTACTOR—Type 256 high-voltage contactor is 15 in. wide, 25 in. deep and 38 in. high, and has double break contacts. A

vertical direct-action solenoid-type magnet helps eliminate the need for flexible leads, turning shaft and shaft bearings.

Three principles of arc extinction are incorporated in this contactor. These include two breaks in series, magnetic blowout, and increasing length of arc path both horizontally and vertically.

Allis-Chalmers Mfg Co, Milwaukee, Wis.

P1160 • AC MOTOR STARTER—Line of manually operated starters are for ac motors up to 7½ hp. Starters are specially designed for use on textile looms, small pumps, blowers and grinders. Units are furnished in both toggle and pushbutton types in 2-, 3-, and 4-pole forms.

General Electric Co, Schenectady 5, N.Y.

P1239 • RESISTOR—*Bulletin* 35 *Edgeohm* high-current resistors are now obtainable in four shorter lengths, 6, 9¼, 12½ and 15¾ in. as well as the 19-in. length previously listed. Four new sizes extend minimum resistance value per unit from 0.35 to 0.05 ohms.

Ward Leonard Electric Co, Mount Vernon, N. Y.

P1237 • SELECTOR SWITCH—Eight to sixteen positions can be set up on the single dial. Pulling handle in selected position starts the desired function; pushing it stops the action.

Arrow-Hart & Hegeman Electric Co, 103 Hawthorne St, Hartford 6, Conn.

SERVICE SWITCH P265

This 100-amp pullout switch was designed for use as an over-all main disconnect switch. It is available singly or in combination with up to 20 single plug fuse branch circuits, and either one or two 30- or 60-amp double pole fusible pullout branch switches.

General Switch Corp, 49 Roebling St, Brooklyn 11, N. Y.

LOADING RELAY P247

Type ASL, Class *B* insulated, air-cooled transformers can be supplied with a relay for turning on cooling fans and operating alarms. Relay operates when transformer loads increase beyond normal self-cooled ratings. *Type TRA* relay makes possible automatic loading of air-cooled transformers to maximum safe copper temperatures.

Westinghouse Electric Corp, P O Box 2099, Pittsburgh 30, Pa.

CAPACITOR SWITCH P155

Rated 15-kv, 110-amp continuous, 3-phase, the B-1 capacitor switch is oil-immersed, electrically operated and constructed for outdoor use. This switch supplants more expensive switching devices that were used on other types of equipment as well as capacitors.

General Electric Co, Schenectady 5, N. Y.

DON'T MISS THESE CONTROL BRIEFS

PRESSURE SWITCH P159

Weighing but 22 oz, this switch takes 1500 psi surge without requiring a calibration change. Operating range is adjustable from 10 to 500 psi.

Cook Electric Co, 2700 North Southport Ave, Chicago 14, Ill.

MOTOR-STARTER P153

Manual, autotransformer-type starter for squirrel-cage motors. It is available in four sizes from 5 hp, 220-440-550 v, to 250 hp, 440-550 v; for 25, 50 and 60 cycles.

Allen-Bradley Co, Milwaukee, Wis.

MOTOR SPEED-CONTROL P157

Type 1701-A *Variac* speed control will handle a 1/20-hp dc shunt motor or a 1/15-hp universal motor from an ac line. Range of continuous speed variation available is from motor-rated speed down to nearly zero at constant torque. A working range of 30:1 can be obtained with shunt motors, and of at least 50:1 with most universal motors.

General Radio Co, 275 Massachusetts Ave, Cambridge 39, Mass.

TIMING RELAY P248

Pneumatic relay with synthetic-rubber bellows for controlling tripping time. Available for ac or dc application, relay's range is easily adjustable from 10 cycles to 3 minutes with an accuracy of ± 10%.

Allen-Bradley Co, Milwaukee, Wis.

SAFETY SWITCH P169

Small over-all dimensions are accomplished by compact design of the *Lo-Ohm* switching mechanism. Switch handle is on front for easy, full-view operation. Modern automobile-type cast-aluminum handles make switch suitable for close ganging.

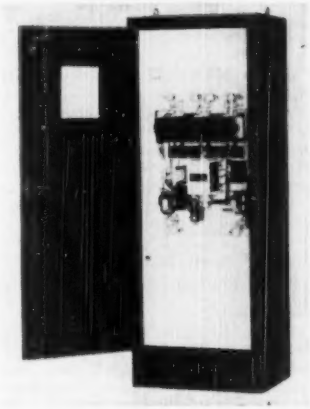
Dept CG, Metropolitan Electric Mfg Co, 22-50 Steinway St, Long Island City 5, N.Y.

VOLTAGE REGULATOR P160

Type *ML-3* step-type voltage regulator provides a total of 10% regulation in eight 1¼% steps. Unit is available in selected kva sizes in 2500-, 5000- and 7620-volt ratings and corresponding Y-connected voltages.

General Electric Co, Schenectady, N.Y.

Use cards on page 181 to get more data



MOTOR STARTER P250

Bulletin 709, ac, across-the-line solenoid starter now includes two new larger units. Size 6, rated 600 amp, 200 hp, 220 v; 400 hp, 440-500 v. Size 7 is rated 900 amp, 300 hp, 220 v; 600 hp, 440-550 v.

Both units have one-piece magnetic plunger that operates with vertical straight-line motion. All terminals and wiring accessible from front. There is no back-of-panel wiring.

Allen-Bradley Co, Milwaukee, Wis.

P717 • COMPENSATED RELAY—Incorporating a bimetal element this relay operates at a constant voltage regardless of temperature or at decreasing voltage with increasing temperature. Unit was developed for battery charge control where operating voltage must decrease with rising temperature.

Sigma Instruments Inc, 45 Ceylon St, Boston, Mass.

P774 • VOLTAGE REGULATOR—Input voltage range of this regulator is from 95 to 135 v, while the output is adjustable between 110 and 120 v. Rated output is 0-500 va and frequency of 60 cps + or — 10%.

Superior Electric Co, Bristol, Conn.

MOTOR STARTER P346

Designed for controlling polyphase motors, 1 to 100 hp, this combined circuit breaker and starter incorporates several new safety features. Operating handle can be locked in "on" or "off" position with one, two, three or four padlocks of varying sizes. Handle-locking mechanism locks door also.

Circuit breaker is nontemperable, and can be quickly reset. Straight-line, guided vertical motion of armature in magnetic starter and movable-contact assembly eliminates bearing and reduces wear.

Square D Co, Inudstrial Controller Div, 4041 N Richards St, Milwaukee 12.

Selected items of ELECTRICAL EQUIPMENT; motors transformers, switchgear, lights, wire and cable, rectifiers, etc.

P873 • TERMINAL BLOCK—An electrical terminal block, known as the *Add-A-Point*, eliminates wasted points and provides an unlimited number of circuit terminations. Simplified assembly procedure permits addition of points at any time after installation.

Rated at 60 amp, they can be operated safely up to 750 v, and test voltage even higher. They are suited for junction box, steel panel, machine tool and switchboard mounting.

Wama Co, Industrial Bldg, Baltimore, Md.

CAPACITOR MOTOR P162

To minimize over-all dimensions of this integral-horsepower *Tri-Clad* motor, capacitors are mounted in the base and there is no conduit in box on the side. Conduit box has been replaced by a built-in terminal board inside the end shield for easier wiring.

General Electric Co, Schenectady 5, N.Y.

CABLE-SPLICE HOUSING P167

Plastic housing eliminates lengthy outside wrapping operations to join lengths of electrical cable. Main structural-part housing is a pipe made from a tough, corrosion-proof blend of synthetic rubber and thermoplastic resins. It is recommended for both aerial and underground installations and can be used with either rubber or neoprene cable.

This pipe fits over the cable joint. Two rubber seals are used in the pipe to make it moisture-tight. Threaded plastic caps on each end of the pipe grip the cable and insure a tough, finished joint.

U.S. Rubber Co, Rockefeller Center, New York 20, N.Y.

TOTALLY ENCLOSED MOTOR P164

Identified as Type TEFC, polyphase, 50 or 60 cycle, constant-speed, continuous-duty, squirrel-cage induction with high torque and low starting current. Power sizes 2 to 60 hp.

Motor housing is totally enclosed. Air is drawn in through the external hood. It then passes over the stator core and out over the pulley bearing. Actual temperature rise on the stator windings will not exceed 55 C. Ball-bearing temperature rise in the motor is 30 C or less.

Valley Electric Corp, Dept 128, 4221 Forest Park Blvd, St. Louis 8, Mo.

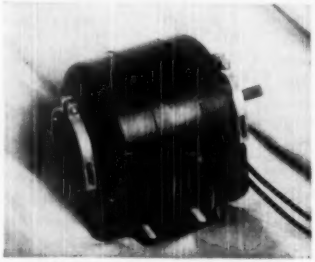
P1019 • INSULATING TAPE — Applied by vulcanization, *R*-12 and *R*-20 *Silastic* tape is a *Fiberglas* cloth impregnated and coated on both sides with *Silastic* rubber. On one side the rubber has been completely cured, but on the other only semi-cured so when heated for vulcanizing a solid insulation piece is formed.

Irvington Varnish & Insulator Co, Irvington 11, N.J.

P1171 • EXTENSION REEL — *Port-O-Reel* eliminates most of the ordinary electric cord wear with resulting longer cord life. New model accommodates 150 ft of No. 16, 2-conductor cord or its equivalent in diameter.

Rewinding is handled at a rate of about 10 ft per sec. Although reel weight has been reduced to only 9 lb and height to 17⅜-in. frame has actually been strengthened by design change.

Industrial Electrical Works, 1509 Chicago Street, Omaha 2, Neb.



P1242 • LIFETIME - LUBRICATED MOTORS—New line of lifetime oil-lubricated, shaded-pole motors is designed for operation in any position—shaft up, down, horizontal, or at any intermediate angle. Designated as Type *KSP*—frame sizes 11 and 21, the new motors can be used as drives for exhaust fans, cooling fans, evaporative coolers, unit heaters, condenser cooling, and space heaters, as well as for small pumps, agitators and blowers.

General Electric Co, Schenectady 5, N. Y.

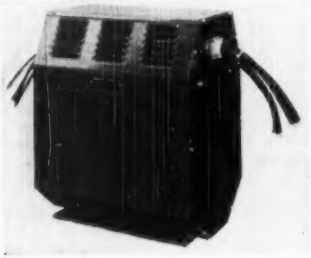
P1255 • SUMP-PUMP MOTORS—An enclosed and explosionproof motor and switch, used on sump pump, has underwriters' approval for hazardous locations such as atmospheres containing metal dust, carbon black, coal or coke dust, grain dust, gasoline fumes or natural gas.

Penberthy Injector Co, 1242 Holden Ave, Detroit 2, Mich.

P1154 • WIRE CONNECTOR—Model E-1 is designed for joining wires up to four No. 18. The inside of the porcelain connector's skirt is threaded throughout, making it easier to insert wires, and screw connector on. Same threads hold insulation up inside connector so that stripped wire ends are completely covered and protected.

Ideal Industries, Inc, 1025 Park Ave, Sycamore, Ill.

WANT MORE INFORMATION?
Send in cards on page 181



P1069 • DRY-TYPE TRANSFORMER—These transformers have two rated-kva 5% taps below rated primary voltage, enabling user to get 120/240-v output from undervoltage supply lines.

General Electric Co, Schenectady 5, N.Y.

EMERGENCY LIGHT P562

Emergi-Lite provides a light source that operates automatically upon failure of current supply. Unit consists essentially of 6-v 40-amp-hr storage battery, 6-v sealed-beam light, transformer, selenium rectifier, relay, double-pole, double-throw toggle-switch and pilot lamps.

Alliance Electric Works Ltd, 141-153 Bates Rd, Montreal 8, Quebec.

LIGHTING TRANSFORMER P448
Redesigned line of dry-type general-purpose lighting transformers permit greater circulation of air through and around the unit, resulting in lower operating temperatures.

Use of Class B heatproof materials such as *Fiberglas*, mica, asbestos etc, has resulted in greater overload capacity, as well as longer life during normal operations. This line, designated as Type C, is available from stock in single-phase ratings of 480/240 - 120/240 v, up to and including 15 kva; also in 3-phase ratings of 240 or 480 v, on primary, and 120/208 Y, 4-wire on secondary.

Marcus Transformer Co, Inc, 32-34 Montgomery St, Hillside 5, N.J.

PHOTOELECTRIC-CELL HEAD P473
Designed particularly for heavy industrial service where space is at a premium. No coaxial or shielded cable is necessary since amplifier is in same housing as phototube.

Companion unit houses a light where shots across a gap are required. Another type houses both the light source and photo pickup for reflected light, as in registration, counting, etc. Depth of unit is 6x3½x1¾ in.

Ess Instrument Co, 96 S Washington Ave, Bergenfield, N. J.

SAVE YOURSELF TIME
Use cards on page 181

AC TO DC CONVERTOR P463
lated source of variable dc voltage from ac power source. It operates from a 95- to 135-v, 60-cycle, single-phase, ac line, and delivers a dc output that is variable from 0 to 30 volts. Allowable output current, available at any voltage setting, is 15 amp.

The Superior Electric Co, Hannon Ave, Bristol, Conn.

GEARMOTORS P468
Built in 17 sizes they provide single, double and triple reduction units for speed from 780 to 7.5 rpm. Motor ratings of 1 to 75 hp are available for practically any industrial application. Conventional open, dripproof, splashproof, totally-enclosed and explosionproof motor constructions can be had for either ac or dc.

Foote Bros Gear & Machine Corp, 4545 Western Blvd, Chicago, Ill.

GROUND DETECTOR P456
Permits detection and location of ground faults on undergrounded electrical distribution systems while all circuits are "hot" and equipment is operating. Apparatus consists of a signal generator and hand-receiver instrument. Generator superimposes a pulsating alternating signal current (50 times per min) on grounded phase conductor.

Fault is located by passing signal receiver (similar to clamp-on ammeter) along feeders, distribution cabinets and branch circuits to equipment. Microammeter in receiver picks up signal current and gives pulsating indication until point of ground fault is reached where needle remains stationary.

Excel Electric Service Co, 2125 S. Western Ave, Chicago 8, Ill.

POWER-PLANT MOTOR P452
Base-ventilated motor, designed specifically for external applications, such as driving out-of-doors power-station auxiliaries. In ratings from 200 to 3000 hp, motor was developed for those outdoor installations where totally enclosed fan-cooled units are not available.

General Electric Co, Schenectady 5, N.Y.

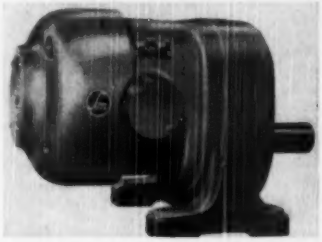
LAMP-DISPOSAL UNIT P336
Beryllium scare this year prompted design of this machine that safely disposes of burnt-out fluorescent tubes. But, regardless of that, it is a good rig for getting rid of a nuisance. Small motor-operated unit grinds old lamps safely under water.

Device handles about 100 lamps in 10 min. Refuse can be carried away in a bucket. Unit operates on 12-gal water and 110 v.

Laduby Co, PO Box 1123, New Haven 5, Conn.

MOTOR AND BRAKE P324
Units offer compactness and simplicity for loads requiring frequent quick stopping and starting. This brake motor has prelubricated for life anti-friction bearings and a brake lining that eliminates the need for adjustments. Brake can be mounted on dripproof splashproof or totally-enclosed 1- to 60-hp motors.

Elliott Co, Jeannette, Pa.



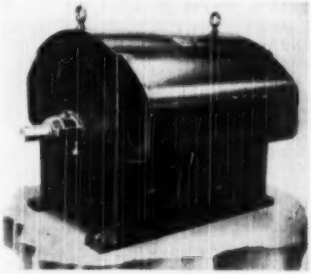
P1005 • GEARED MOTOR — An external fan forces cooling air over streamlined motor case. Type *FWFB* is a totally enclosed geared motor and is suitable for atmospheres containing nonexplosive dusts, vapors and injurious foreign materials.

Sterling Electric Motors, Inc, Los Angeles, Calif.

LIGHTING PANELBOARD P563
Line of narrow-width NMO-XX circuit breaker lighting panelboards to fit into web of 8-in. wide-flange structural beams. Panelboard incorporates thermal-magnetic circuit-breaker units that "plug-in" on cylindrical bus bars.

Available both for single-phase 3-wire, and for 3-phase 4-wire services with 15, 20, 30, 40 and 50 amp branch circuits.

Square D Co, 6060 Rivard St, Detroit 11, Mich.



SPLASHPROOF MOTOR P460
Built in sizes from 150 to 2000 hp, 4 to 14 poles, this motor is designed for outdoor steam-generating stations and open-air process plants. Ventilating system has straight-through inlet and discharge openings on both ends of motor. Foreign matter blown into ventilating openings is deflected by a series of baffles, and either drains out or travels straight through.

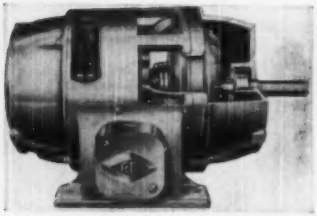
Foundation for this motor may be a simple concrete slab. Sealed, split, ring-oiled, sleeve or antifriction bearings are available.

Elliott Co, Jeannette, Pa.

FLUORESCENT LAMP GUARD P330
Safety device for positive, permanent protection against falling fluorescent lamps in continuous run, end-to-end lighting installations. These lamp guards may be sprung aside for relamping and cleaning. Quickly and permanently installed with screwdriver.

Den-El Equipment Co, 271 Conklin Ave, Hillside, N. J.

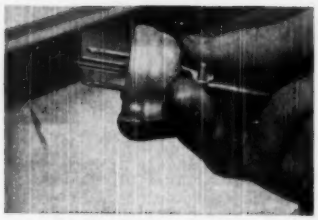
More electrical items on following pages



P1104 • FLUID-SHAFT MOTORS—Power unit combines in a single-frame an electric motor and a fluid-drive coupling. Built in all 3-phase or single-phase motor sizes from ¼ to 150 hp.

Motor-reducer units are also available that combine an electric motor, a fluid-drive coupling and a single or double-reduction gear in a single assembly, where low output speeds are required. All gears and bearings operate in an oil bath.

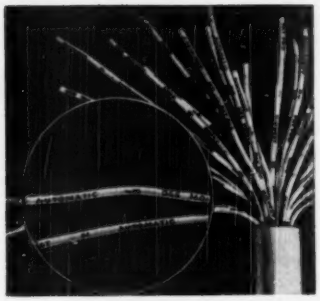
Reuland Electric Co, Alhambra, Calif.



PLUG-IN WIRING STRIP P252

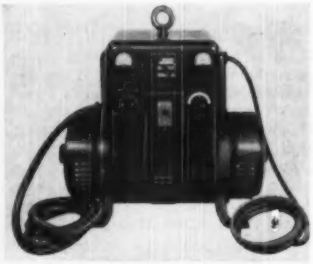
In addition to providing a spread of electrical outlets at either 6- or 18-in. intervals, new multi-outlet assembly allows plugging-in grounded or ungrounded portable electrical equipment in every receptacle. Besides conventional two slots in each receptacle, there is an adjacent third grounding slot.

National Electric Products Corp, Chamber of Commerce Bldg, Pittsburgh 19, Pa.



P1016 • CODED WIRE—Numbers are used instead of color-coding to increase ease and accuracy of installation and maintenance. Each wire has its code number imprinted in bright red on every inch of the yellow insulation.

Midwest Automatic Control Co, 510 Third St, Des Moines, Iowa.

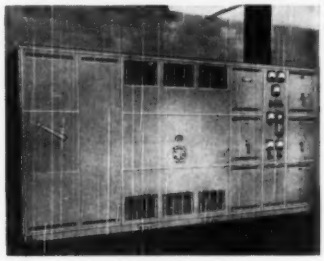


P1238 • BATTERY CHARGER — Device charges 200 to 500 amp-hr lead-acid batteries of 12, 15, 16 and 18 cell capacity, and/or 150 to 450 amp-hr nickel-iron batteries of 20, 24, and 30 cell capacity. Unit consists of a separately excited motor-generator set with a no-load voltage control of 30 to 60 v, plus a voltage-drop control.

Motor Generator Corp, Hobart Square, Troy, Ohio.

P1236 • BATTERY CELL-FILLER—Now maintenance men can add water to batteries quickly, accurately and easily. *Cell-Filler* consists of a tube with nozzle at one end and handle at other. Valve is operated by finger control.

Electric Storage Battery Co, 19th St, & Allegheny Ave, Philadelphia 32, Pa.



P1010 • UNIT-SUBSTATION — Complete power package consists of a dry-type transformer, primary protection, as well as secondary breakers and necessary metering equipment. Transformer section is constructed throughout with Class B and C heatproof insulation, such as *Fiberglas*, mica, porcelain, or *Quinterra*.

Marcus Transformer Co, 32-34 Montgomery St, Hillside 5, N.J.

CURRENT TRANSFORMERS P337

Type MR through-type ct for low-voltage metering indoors. New transformers have good accuracy and continuous current rating of 200%, while not exceeding temperature rise of 55 C. Accuracy is maintained over this entire current span so only two current transformers—200- and 400-amp ratings—are required to meter in the complete range from 10 to 800 amp.

Westinghouse Electric Corp, PO Box 2099, Pittsburgh 30, Pa.

SILVER-ZINC BATTERY P334

Silvercel is 1/3 to 1/5 weight of common batteries now in use and volume is ½ to 1/3. Energy efficiency is about 85% Normal cell voltage is 1.5.

Yardney Electric Corp, 105-107 Chambers St, New York 7, N. Y.

P1015 • ELECTRICAL INSULATION—An insulating plastic film for coils is applied like tape and then heat-treated. It bonds itself into a unified layer of insulation.. Usually the film serves without other materials.

Minnesota Mining and Mfg Co, 900 Fauquier St, St. Paul 6, Minn.

P1232 • BATTERY CHARGER—Automatic selenium rectifier battery chargers are designed for locations that require minimum maintenance. Units are equipped with magnetic amplifier controls having no moving parts, vacuum tubes, tap switches or sliding contacts.

Industrial Electronics & Transformer Co, 1801 East Slauson Ave, Los Angeles 11, Calif.

P1152 • FLUORESCENT LAMP TESTER — Compact device for testing fluorescent tubes, tube starters and incandescent lamps. May be used for portable or permanent mounting.

Gould Electric Supply Co, 2015 Jerome Ave, Bronx 53, N.Y.

P1151 • AIR CIRCUIT BREAKER—Suitable for replacing obsolete oil circuit breakers of insufficient interrupting capacity. *Ruptair* breaker is equipped with individual wheels that aid withdrawal for replacement or for inspection.

Units offered have interrupting capacities of 100, 150 and 250 mva at 4160 v and 100 and 150 mva at 2300 v. Current-carrying capacities are 600, 1200 and 2000 amp.

Allis-Chalmers Mfg Co, 951 S 70th St, Milwaukee, Wis.

DC TO AC CONVERTER P258

These vibrator converters are available in models for operation on 32-, 64- and 120-v dc input. All units have an output rating of 115-v dc, 60 cycles, 375 volt-amperes. Over-all size of the converters mounted on racks is 26½x18x10-in.

Unit boasts of no service interruptions. Standby vibrator automatically picks up load at end of service vibrator life. Service vibrator can be replaced at main repair depot.

Cornell-Dubilier Electric Corp, 2900 Columbia Ave, Indianapolis, Ind.

SPLASHPROOF MOTOR P327

Designed to take direct streams of water or other liquids, motor may be mounted in any position and keep its splashproof features. End bells permit free passage of air through baffles yet prevent splashing liquids from reaching motor interior. Air is drawn through rear of motor and exhausted from shaft end, thereby blowing away foreign materials. Sealed shaft ends assure protection against entry of liquids into bearing housings. All bearings are lubricated for life.

Sterling Electric Motors, Los Angeles 22, Calif.

P1014 • HYDRAULIC DYNAMOMETER—Designed for load-testing large electric motors, the *SA*-484 dynamometer has a capacity between 30 and 300 ft lb. Unit is placed directly on test floor and is provided with jack screws for raising to correct height for connection to motor to be tested.

Adapters for 1⅛-, 1¼-, 1⅝-, 1⅞-, 2⅛-, 2⅜-, 2⅝- and 2⅞-in. motor shafts are furnished with each unit. Dynamometer tests include idle, pull-in, pull-up, full-load and locked rotor. The dynamometer cannot be used for a motor heat-run test.

Wagner Electric Corp, 6400 Plymouth Ave, St. Louis 14, Mo.

P1072 • TRANSFORMER CONTROLLER—An emergency control handle for *CPS* transformers makes possible temporary emergency operation during overload periods. Device is designed for times when it is impossible or inexpedient to replace an overload transformer immediately.

Westinghouse Electric Corp, P O Box 2099, Pittsburgh 30, Pa.

P1235 • ELECTRICAL TAPE—The "job-size" roll" of *Scotch* brand tape is now available for convenient, one-day supply of tape. The plastic-backed tape, introduced two years ago, provides both electrical insulation and abrasion resistance in a single taping operation.

Minnesota Mining & Mfg Co, 900 Fauquier St, St. Paul 6, Minn.

P1077 • LAMP STARTER—This safety starter eliminates danger of fire, short circuits and transformer burn-outs in fluorescent lamp fixtures. Starter is a thermostatic relay switch that prevents repeated starting attempts when lamp is defective. If defective lamp does not light within 30 sec, thermal relay automatically switches off lamp.

Sucar Laboratories Inc, 36 Halsey St, Newark, N.J.

P1011 • LOCKING FUSE CLIP—Fuse and resistor clip has a unique locking device that holds ferrule firmly in place. This insures an uninterrupted flow of current at all times regardless of vibration.

Advertising Dept, Raytheon Mfg Co, Waltham 54, Mass.

P1020 • TERMINAL BLOCKS—Solderless type *Bepco* molded terminal block eliminates need for wrapping wires around studs or using separate terminals as wire ends. Blocks have compression type solderless units to handle wires from No. 16 to 6 AWG.

Buchanan Electrical Products Corp, 1290 Central Ave, Hillside, N.J.

P1023 • BALL-BEARING MOTOR—Air-cooled, ball-bearing motor, Type *TEFC*, polyphase, 50- or 60-cycle, constant-speed, continuous-duty, squirrel-cage induction-design, has high torque, low starting current for sizes from 2 to 60 hp.

Dept 104, Valley Electric Corp, 4221 Forest Park Blvd, St. Louis 8, Mo.

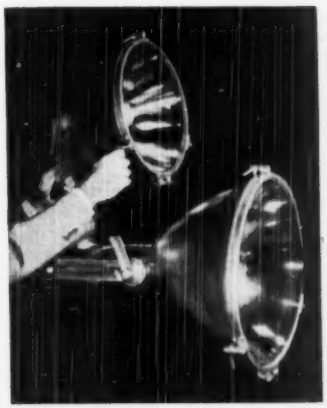
P1013 • TOTALLY ENCLOSED MOTOR—Copper fins are embedded in stator laminations for additional cooling of Type *CS*, totally enclosed, fan-cooled, squirrel-cage motors. Heat conduction from stator is handled by interleaving circular copper punchings among core laminations. Fins extend beyond core iron so heat picked

TELL ME MORE!

We'll ask the maker to send details. Just fill out cards on page 181.

P1234 • VARIABLE-SPEED MOTOR—Vertical *Speed-Trol* motor is available with integrally built helical gears, labyrinth seals, heavy-duty ball bearings, and the new streamlined case. Another feature is the fingertip control of speed with the large easy-to-read speed indicator.

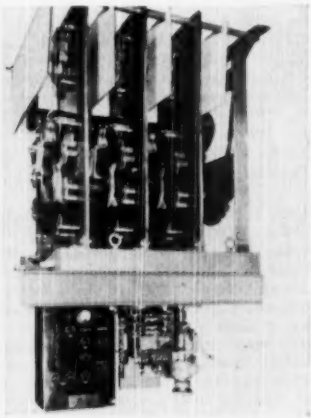
Sterling Electric Motors, Inc, 5401 Anaheim-Telegraph Rd, Los Angeles 22, Calif.



FLOODLIGHTS P166

Type L-84 rated at 500 watts and the Type L-85 rated 1000 watts can be used for all general-purpose applications. They are available for either general lighting service or floodlighting service lamps.

General Electric Co, Schenectady 5, N.Y.



TAP-CHANGER P375

Designed for tap changing under load, this equipment provides a voltage-regulation range of 20% in thirty-two ⅝-percent steps. Device incorporates a new principle in reactor switching along with eliminating arcing duty from the tap selector switch.

Moloney Electric Co, St. Louis, Mo.

up can be transferred to external cooling air.

Motors are for service in central stations, cement mills, flour mills, coal-pulverizing plants, grain elevators, steel mills and other locations where atmosphere is contaminated with dust particles. Motors, which are not for outdoor use, are available up to about 1500 hp at 1800 rpm. Class B insulation, 75 C rise.

Westinghouse Electric Corp, P O Box 2099, Pittsburgh 30, Pa.

P958 • SELENIUM RECTIFIER — *Powerector* delivers 10-50 times more dc than conventional stack rating. It is available in ac rms blocking voltage up to 40 v per cell.

Rectifier withstands large overloads for short time periods or duty cycles. Unit is suitable for all heavy power applications.

Standard Arcturus Corp, 54 Clark St, Newark, N. J.

VARIABLE-SPEED MOTOR P582

Ample cooling of the *Speed-Trol* motor is accomplished by forced-draft ventilation with an external fan, protected by a streamlined fan cover.

Motor features fingertip control of speed, allowing infinite speed adjustment through mechanical, electrical or lever-type controls. Motor is built integrally with pulleys, shafts and belts, in one compact unit for installation ease.

Sterling Electric Motors, Inc, Los Angeles, Calif.

CABLE FAULT-LOCATOR P649

High-voltage dc impulse transmitter with pickup coil and detector designed primarily for locating faults on lead-covered cable installed in ducts. Has applications also on aerial and buried cable.

Set is essentially independent of the type of fault or its apparent resistance. It depends only on the impulse voltage required to break down the fault. Unit is rated up to 20 kv for use on all cable up to 15 kv and higher.

James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

CABLE REEL P651

Model 3000 series *Powereel* is portable, saves labor, time, eliminates excessive cable wear. Unit is rated at 75 amp, 220 v, and is designed for use with any phase current. Collector ring permits winding or unwinding of cable without interrupting service. Reel comes with either 3 or 4 collector rings as standard. Standard models weigh 21 lb, and with special hand truck weigh 30 lb. Examples of capacity are: 300 ft of ¾-in. diameter No. 12, 4-conductor cable, or 3200 ft of 2-conductor shielded microphone lead cord.

Industrial Electrical Works, Dept A102, 1509 Chicago St, Omaha 2, Neb.

TILTING MOTOR BASE P654

Designed for fractional-hp motors, base has reversible mounting brackets for versatility of motor installation. Convenient handle allows adjustment of motor to desired position.

Gerbing Manufacturing Corp, 650 W. Washington Blvd, Chicago 6, Ill.

WIRE CONNECTORS P655

Five lug models for use with copper, aluminum or steel wire in sizes from 14 AWG to 500 mcm. These pressure connectors are complete assemblies, thus eliminating loose washers or parts. Three smaller sizes, NE 35, 60 and 100, can be installed with a screwdriver, while the larger sizes, NE 200 and 400, call for a wrench.

National Electric Products Corp, Chamber of Commerce Bldg, Pittsburgh 19, Pa.

MOBILE POWER PLANT P648

Cyclohm power plant has 4-cycle single-cylinder L-head-type engine, air-cooled by a flywheel blower. Units are available in sizes from 350 to 2000 watts, both ac and dc. Automatic reverse-current cutout prevents battery discharging through unit when generator voltage falls below battery voltage. Power plant is suitable for mobile and emergency service.

Cyclohm Motor Corp, 11-6 Road, Long Island City, N. Y.

P953 • DIRECT - MOUNTED MOTORS—*Unimount* motors are equipped with machined brackets to mount direct on almost any driven machine. They are suitable for pumps, compressors, mixers, machine tools, blowers, woodworking machines, grinders, etc.

U.S. Electrical Motors, Inc, Los Angeles 54, Calif., and Milford, Conn.

FLUORESCENT FIXTURES P657

Eight-foot 2-lamp fluorescent lighting fixture together with 4-foot matching unit, both designed especially for continuous-row lighting applications in industrial plants.

The new 8-ft HFFS-296 fixture was engineered to simplify maintenance by the use of two 4-foot reflectors instead of one reflector running the entire length. Thus, one man can handle maintenance operations despite the new unit's over-all length.

Sylvania Electric Products Inc, 500 Fifth Ave, New York 18, N. Y.

PHOTOTUBE LIGHT SOURCE P658

General-purpose light sources have simple snap-on covers that make possible lamp replacement in about 20 seconds. Prefocused lamps are used throughout, assuring that the filament is in the proper position in relation to the transmitting lens of the light source.

Phototube holder is furnished complete with phototube, lens, masks and nine feet of connecting cable. For mounting convenience both a mounting clamp (providing 360 deg horizontal and 120 deg vertical adjustment) and a standard pipe thread for half-inch conduit are provided.

General Electric Co, Schenectady 5, N. Y.

INSULATED SPLICE CAPS P583

Caps with insulators are available in larger size that accommodates five No. 14 or three No. 12 to two No. 16 wires. Splice cap is installed quickly and securely by means of crimping tool having four uniformly converging plungers which draw cap and inserted wires into solid permanent mass.

Cap is insulated quickly by pushing molded insulator over it and turning up red security ring to lock insulator firmly in place.

Device is approved by both Underwriters' Laboratories, Inc, and Canadian Standards Assn for circuits to 600 v.

Buchanan Electrical Products Corp, 1290 Central Ave, Hillside, N.J.

HERE'S EXTRA HELP...

If you want more information about any products in this section, first use the cards on page 181. However, if you want more and don't have any more cards, just fill out this coupon, paste it on a penny postcard and send it to us. We'll get in touch with the manufacturer and ask him to send you details.

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Write in spaces above the number of the item you want more data about. Send to POWER, 330 W 42nd St, New York 18, N. Y.

Name.....

Address.....

Company.....

Title.....

HEAT EXCHANGE EQUIPMENT

P1220 • HEAT EXCHANGERS — Standardized, stock-type F, fixed-tube-bundle, tube-and-shell heat exchangers are available in single- and 2-pass designs.

Corrosion-resistant Admiralty tubing permits handling fresh or salt water. Unit has been engineered for water-to-water, or oil-to-water cooling to cover a wide range of applications. Single-pass designs may be selected for easier piping arrangements where temperature difference between two fluids is small. Two-pass unit serves well where water supply is limited and temperature difference between fluids is fairly high.

Young Radiator Co, Racine, Wis.

HEAT EXCHANGER P422

Type R, removable bundle shell and tube heat exchanger is available from stock in both single- and 2-pass models.

Tubing is corrosion-resistant Admiralty. Tubes are put up in larger sizes, ⅝- and ⅞-in. OD, with engineered tube spacing and baffling to give a longer unit life, easier maintenance, and maximum heat transfer.

Young Radiator Co, Racine, Wis.

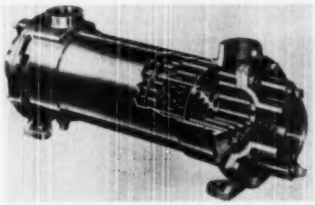
WANT MORE INFORMATION?
Send in cards on page 181

HOT-WATER HEATER P429

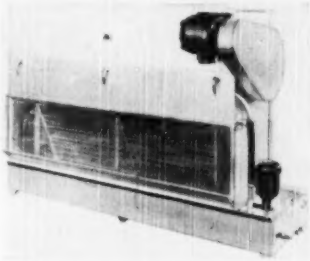
Instant hot water from 3960- to 31,500-gal-per-hr capacity can be had from one of nine *Hy-Flow* hot-water heaters.

Steam, fed in at top, is directed through an assembly of tubes that act as injectors. Cold water, entering from side, is caught up in the suction created by the moving steam. The mixture of steam and water passes over a set of metal barriers that produce an intimate mixture and give uniformly hot water at the bottom discharge.

A Gunthard Co, Ennis, Texas



STANDARDIZED HEAT EXCHANGER, P 119, made of stainless steel, is offered in a complete range of sizes tested to 450 psi under the name of *Type SSCF*. **Ross Heater & Mfg Co, 1407 West Ave, Buffalo 13, N. Y.**



P830 • EVAPORATIVE CONDENSER—New line of evaporative condensers—5 to 40 ton capacity—has welded-steel angle iron and heavy steel for frame and sump pan, hot-dipped galvanized after fabrication.

Standard features include fiber-glass eliminator section in the 20 to 40 ton units for positive removal of entrained water droplets before they enter the fan section. Centrifugal pumps, in the 5 to 15 ton units, have inlets at bottom of sump to avoid air binding.

Bush Mfg Co, Hartford, Conn.

HEAT EXCHANGER P616

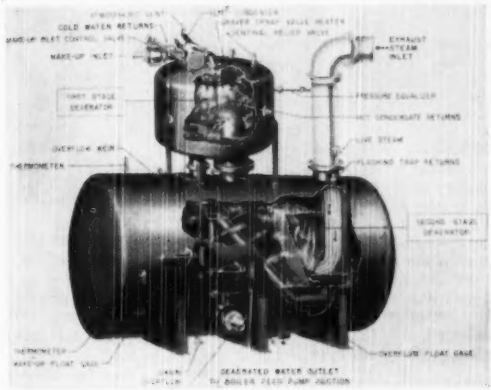
All copper, removable tube bundle, standardized heat exchanger, Type BCP, available in single- and 2-pass designs, in a range of sizes, features this addition to the company's line.

Ross Heater & Mfg Co, Inc, 1407 West Ave, Buffalo 13, N. Y.

P896 • OIL PREHEATER — Electrically heated 4000 watt oil *Pre-Heater* can handle 50 gal per hr of No. 5 or 6 oils to eliminate need for oil heaters in main storage tank.

Pre-Heater is installed in oil-supply line and connected to a 220- or 440-v single-phase electric energy source. If the oil burner does not require 50 gal per hr the excess can be bypassed through a relief valve to storage where it lowers average viscosity of stored oil.

Boyar Products Corp, 104 E Charles Rd, Lombard, Ill.



DEAERATING HEATER P499

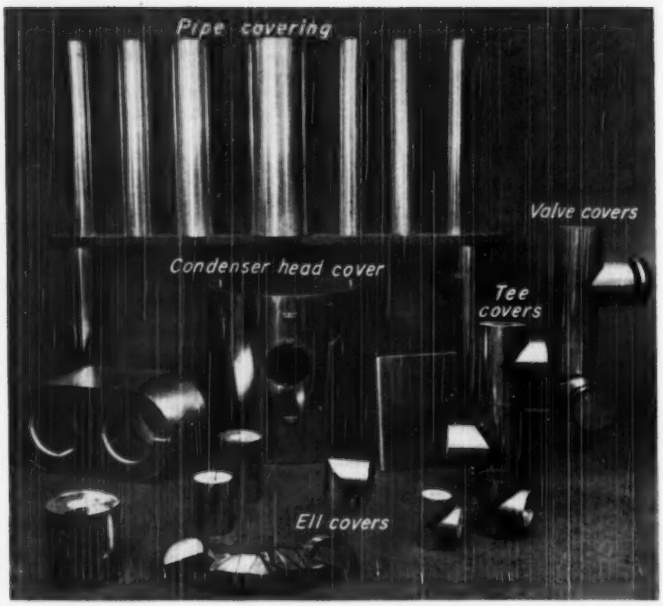
Two-stage deaerating heater reduces oxygen content for feed-water to less than 0.005 ml per liter measured by the ASTM Referee Method or modified Winkler test regardless of load variations or unusual operating conditions. Carbon dioxide is also completely removed.

Spring-load self-adjusting spray valves in the first stage cause heating of incoming water to within 2 to 4 deg of the steam, which removes virtually all oxygen and free CO_2. This preheated water is intimately mixed with incoming steam in the second stage by means of specially designed scrubbing baffles, which remove last traces of undissolved gases. Remaining vapor then goes to first stage where it preheats incoming water.

Countercurrent flow of steam and water accomplishes complete deaeration with minimum steam. Heaters are available in all sizes up to 2,000,000 lb per hr. Second stage of each heater is tailor-made for individual plant conditions and for the desired storage capacity.

Graver Water Conditioning Co, 216 W. 14 St, New York 11, N. Y.

INSULATION PRODUCTS, Blankets, Blocks, Cement, Pipe Covering, Vibration Isolation, etc.



UNDERGROUND INSULATION P629

Cast-in-place *Z-Crete* gives a solid covering of water-repellent insulation that provides insulation and necessary structural conduit for underground steam lines.

Insulating concrete is made up of portland cement, vermiculite aggregate, special waterproofing admix and water, wrapped up in a waterproof envelope of three mappings of hot pitch and two layers of tar-saturated felts.

Zonolite Co, 12300 S. Ashland, Blue Island, Chicago, Ill.

P1222 • HIGH-TEMPERATURE INSULATION —Mineral-wool, all-purpose block, *BL*-17 for temperatures up to 1700 F and a companion, insulating cement, *C*-18, feature new line of manufacturer's products.

These items form a part of a complete high-temperature-insulation products line just started. The chemically inert block, *BL*-17, has a density of 1.67 lb per board ft. The insulating cement is made up of mineral wool, long fiber asbestos and an adhesive binder. It is applied like a plastic; 100 lb of *C*-18 covers 50 to 55 board ft.

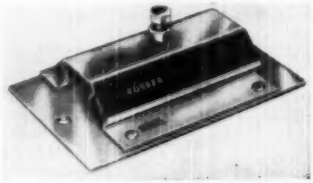
Other products include an insulating cement good to 2300 F, finishing cement, pipe covering, mineral-wool blankets, loose fibrous and granulated mineral wool, protective coatings for insulation surfaces and an insulation block adhesive.

Bigelow Liptak Corp, 2842 W Grand Blvd, Detroit 2, Mich.

THERMAL INSULATION P564

Three tough, permanently separated aluminum sheets, and two fiber, flame, mold and vermin-proof partitions make up Infra Type 6 thermal insulation. This insulation provides six reflective spaces and six reflector surfaces of an emissivity and absorption of only 3%.

Infra Insulation, Inc, 10 Murray St, New York, N. Y.



VIBRATION ISOLATOR P214

Steel channel floating in rubber between two steel angles, welded to a steel plate for bolting down, make up the *Finnflex SP-9* vibration isolator.

Correct angularity between steel and securely bonded rubber enables the isolator to approximate the flat spot on a stress-strain curve of relative slope. Because the spring index (load divided by deflection) is not constant, resonance is avoided.

Finn & Co, 2850 Eighth Ave, New York 30, N. Y.

REFLECTIVE-METAL HEAT INSULATION

P500 • Mirrorheat insulation, for surfaces ranging from subzero temperatures to more than 1000 F, consists of several layers of medium-gage aluminum alloy sheets, mechanically held by nonconducting spacers to prevent metal contact and maintain uniform air spaces.

Sectional insulation snaps on pipe, clamshell fashion, and is secured with metal bands. Fittings are similarly handled. Plastic and tape-sealed joints on cold insulation stop infiltration of moisture. Mirror insulation also available for flat surfaces, tanks and irregular surfaces.

Makers claim heat loss is less than with same thickness of standard commercial insulations.

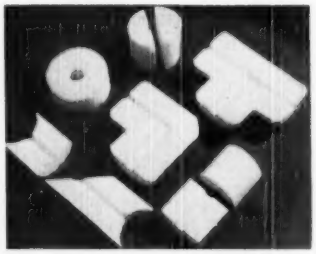
Other advantages cited include dustlessness, extreme ease of installation, continued resistance to water, oil, rust, rot, fire, vibration, etc. Sections are light in weight and can easily be removed and replaced without tools.

Because the outer sheet forms its own finish, "Mirror" requires no paint, canvas or other protection.

Gronemeyer Corp, 203 South Road, Wilmington, Del.

P1163 • VIBRATION MOUNT—Designed for use with generators, pumps and compressors, where horizontal and rotary machinery vibrations are present, vibration isolation and attendant noise reduction are accomplished through the "rubber-in-shear" principle.

Finn & Co, 2850 Eighth Ave, New York 30, N.Y.



P1209 • INSULATION—*K-Shield* low-temperature insulation, made of *Styrofoam*, is a light and highly workable rigid material that also acts as a moisture barrier. It resists mold growth, rot and decay. Insulation weighs about 1¼ to 1½ lb per cu ft.

Robinson Industries, Coleman, Mich.

MAINTENANCE AND SAFETY EQUIPMENT

including....
Tools
Tube cleaners
Lubricating equipment
Vacuum cleaners
Pipe threaders
Firefighting
and related equipment

FIRE EXTINGUISHER P612

New cartridge-operated water-type fire extinguisher with stainless-steel shell eliminates annual cost and nuisance of recharging required by soda-acid extinguisher. Carbon-dioxide pressure cartridge need be replaced and water replenished only if extinguisher is discharged.

Pyrene Mfg Co, 560 Belmont Ave, Newark 8, N. J.

SPRAY GUN P613

Four-finger trigger-control spray gun, together with a patented nozzle, permits delivering a variable paint spray from the size of a silver dollar to a swath more than 12 in. wide. Spray is varied by a thumbscrew at the back of the gun. Separate lines deliver compressed air and paint to the gun.

Eclipse Air Brush Co, 390 Park Ave, Newark 7, N. J.

SCAFFOLDING P501

Aluminum-alloy tube-and-coupler scaffolds can be erected in any size or shape. Swivel base plates require no wedging. Carry over 75 lb per sq ft with safety factor of 4.

Up-Right Scaffolds, 1013 Pardee St, Berkeley, Calif.

SOLDERING TORCH P531

Half-pint self-pressure torch, No. 59 for gasoline and No. 60 for alcohol, is of high-polished, heavy-gage brass, 3½ in. diameter. It holds 7½ ounces of fuel, burns 3½ hr full open at 1700-F temperature. A brass wire, interwoven with the wick, feeds fuel so no pump is needed.

Turner Brass Works, Sycamore, Ill.

PAINT ROLLS P639

Painting device uses a wool-covered hollow perforated-metal roll, kept supplied with paint under pressure. In one model, paint is in a small aluminum cylinder fitted with a spring-loaded piston pump, which forces out paint when valve is opened.

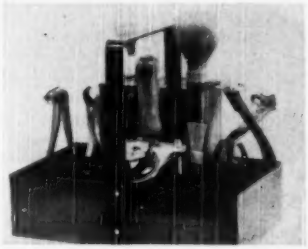
In a larger model, paint is in a pump-fitted can to which a long hose connects. The hose runs to a paint roll, which the painter moves lightly over the surface to be painted, in the same way as the small model is used. The small model holds 1 pint of paint, the large one 2.5 gal.

Rubberset Co, 56 Ferry St, Newark, N. J.

TORQUE WRENCH P512

Proto torque wrench has a trip lever, set at the desired torque reading that trips a signal trigger when the wrench is pulled to the torque limit set. Wrenches come in capacities from 25 to 300 ftlb and from 300 to 3600 in.-lb.

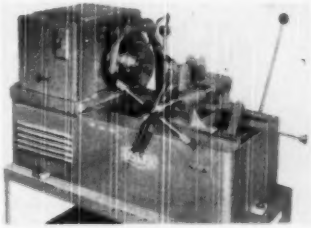
Plomb Tool Co, Los Angeles, Calif.



BATTERY TOOLS P579

Battery service kit, GS No. 3F, consists of a steel tray with handle and compartments for holding battery-servicing tools and water. Water jar has two holes; one to hold hydrometer and the other for a battery filler.

General Scientific Equipment Co, 2700 W Huntingdon St, Philadelphia 32, Pa.



PORTABLE PIPE THREADER P537

Tom Thumb models, No. 582 and 582-R, thread pipe from ¼ to 2 in. standard range; extra range ¼-in. pipe, extended range with drive shaft, 2½ to 8 in. Both models have a bolt range of ¾ to 1½ in. Models No. 581-A and 582-A are designed primarily for threading bolts from ¼ to 1½ in. No. 581-A has pipe range of ⅛ to 1¼ in. Pipe range of No. 582-A is ¼ to 2 in.

The Oster Mfg Co, Cleveland, Ohio.

PRESSURE-FED PAINT BRUSH P532

Four brushes called *Stream-Flo*—oval design, 2½ in., and flat design, 3, 3½ and 4 in.—have hose connected to handle that delivers paint under 20 to 30 psi to a feeder brush set within the main brush.

The feeder distributes paint evenly through the bristles of the main brush. A valve in the brush handle controls paint flow. Standard pressure equipment and fittings are used throughout. Paint can be mixed and placed in a pressure tank. Several brushes operate off this single tank.

Harlon & Goodman Co, Belleville, N.J.

FIRE EXTINGUISHER P503

Stationary firefighting unit, built in 500-1000- and 2000-lb capacities, is designed to protect wide areas where minimum manpower is available. One person can operate the stationary unit and fight a fire in any portion of an area several acres in size. System consists of a centrally located steel tank to hold the dry chemical and nitrogen cylinders to pressurize the tank. Piping runs underground from the tank to one or more outlets scattered throughout the area to be protected. Flow rate of dry chemical is 450 lb per min.

Ansul Chemical Co, Marinette, Wis.

MOBILE PLATFORM P575

Beanstalk is a one-man-operated working platform with a maximum height of 17 ft. Manual hydraulic pump gives full elevation in two minutes. Complete framework folds up so it can be carried through door 6½ ft high.

William Moss & Sons, Ltd, Mechanical Developments Div, N Circular Road, Cricklewood, London, NW 2, England

POWER TOOL P621

New spring-impelled firing pin gives positive and easier action with no misfires. Velocity-power driver fires a .32 or .44 caliber stud-cartridge that embeds studs in metal, concrete or masonry with a holding power of several thousand pounds.

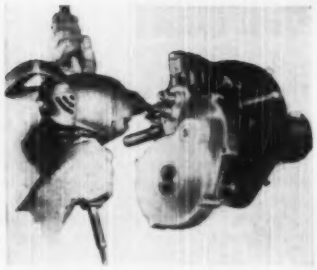
Mine Safety Appliance Co, Braddock, Thomas & Meade St, Pittsburgh 18.

WELDER MASK P566

Air-tight rubber mask and chrome-leather hood, with flexible-tube connections, give protection against ultraviolet and infrared radiation, impact and pitting, and inhaling of toxic fumes.

Three lenses are used: (1) permanent, safety lens sealed in the assembly (2) removable welding lens and (3) removable pitting lenses. Different shades of filtering lens can be used, depending on type of welding.

Mines Safety Appliances Co, 201 N. Braddock Ave, Pittsburgh, Pa.



P1207 • PIPE THREADER—*Porta-Drive* portable pipe threader weighs only 14 lb. One man can operate it to thread pipe up to 6 in. in dia in any position. Device can be driven by any ½-hp heavy-duty electric drill.

Muncie Gear Works Inc, Muncie, Ind.

MASONRY DRILL P609

Two spiral low-angle flutes are turned in the *Cyclo-Twist* steel-drill body. Diameter of body is the same as that of the hole to be drilled so maximum steel support is given to the carbide tip.

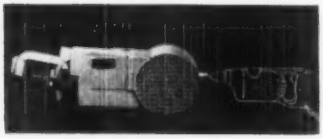
Because this construction gives a positive dust lift, the hole does not need to be cleaned, the drill stalled or slowed down. Drills come in sizes from 3/16 to 1 in.

New England Carbide Tool Co, Inc, 60 Brookline St, Cambridge 39, Mass.

HAND HOISTS P638

Made in capacities from ½ to 4 tons, these hoists are compact, operate in close headroom, are light weight and easy to handle in tight places. Their construction features include a modern gear drive, Weston-type brake, steel load chain, steel housing, self-lubrication, and drop-forged top and bottom hooks. They have a high safety factor against possible impact loadings.

Wright Hoist Div, American Chain & Cable Co, 1100 East Princess St, York, Pa.



PORTABLE HACK SAW P125

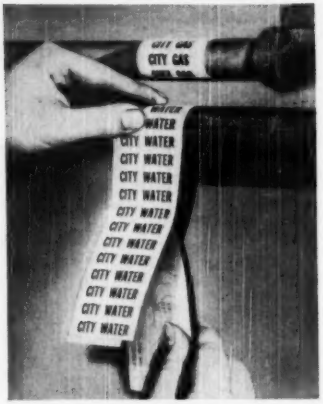
Weighs only 21 lb; uses a standard 10-in. blade; has a 5-in. stroke and is powered by any standard electric drill to give 200 strokes per min with a 1240-rpm drill.

Zina Goodell Corp, 87 Canal St, Salem, Mass.

FILTER UNIT P411

Surfamax porous stainless-steel filters supply maximum filter area in a convenient small container. Filter elements are in the form of corrugated assemblies, available in 6-pore openings ranging from 5 to 165 microns. Standard units with pipe connections ranging from ¾ to 2 in. are available. Others can be supplied on special orders up to 10-in. pipe size and in capacities up to 10,000 gpm.

Micro Metallic Corp, 193 Bradford St, Brooklyn 7, N. Y.



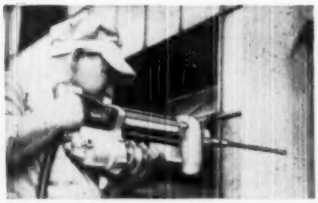
SELF-STICKING PIPE MARKER P132

Quik-Label is suitable for small pipe and conduit from ¼- to 2-in. sizes.

W H Brady Co, 815 North Third St, Dept 120, Milwaukee, Wis.

MORE DATA?

Just fill out cards on page 181 and send them to us—We'll do the rest



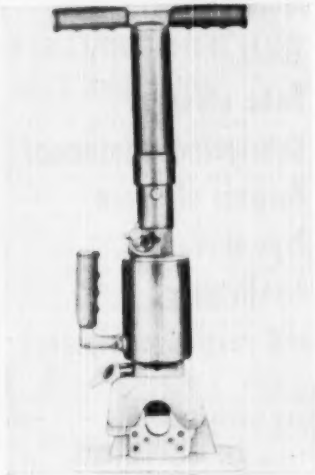
P1144 • ELECTRIC HAMMER—Model 25-*RO* rotating electric hammer has an automatic safety clutch, and drills up to 2-in. diameter holes. The percussive hammering can be stopped while the bit continues to rotate to clean the hole. Device weighs 38½ lb and is available for either 110- or 220-v ac operation.

Syntron Co, 492 Lexington Ave, Homer City, Pa.

MAGNETIC SWEEPER P440

Stray nuts, bolts, screws, etc, can be picked up easily with the 12-in. *Magimnick* magnetic sweeper that moves on fiber wheels.

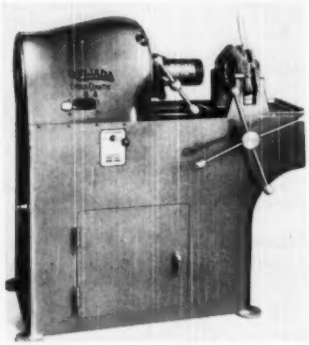
Ullman Products Corp, 152 Prospect Ave, Brooklyn 15, N. Y.



P1205 • SHEAR-TYPE CUTTER

Weighing only 40 lb, *Guillotine* hydraulic shear cuts wire rope up to 1¼ in. and mild steel rod up to 3.4 in. in dia.

Manco Mfg Co, Bradley, Ill.



P1062 • PIPE-THREADER — Faster working speed, automatic chucking are claimed for *Thred-O-Matic* 44 in. mechanical pipe threading machine that handles pipes from ½ in. to 4.

All the operator need do is lay the pipe in the spindle, flip a switch and the pipe is chucked, centered and turning.

Quijada Tool Co, Los Angeles, Calif.

FILTER WITH V-DISKS P419

Series of V-shaped, horizontal filter disks, bolted onto the cover of a filter housing, remove solids down to 1 or 2 microns from liquids, separate water from fuel oil, purify gases.

V-shaped disk is made up of two perforated leaves separated at the center by a

perforated flange. Leaves are covered with a filter media — synthetic rayon, nonwoven cloth, resin-treated filter paper, etc. Filter housing is high-pressure cast aluminum; all contact parts are rustproofed.

Sparkler Mfg Co, Mundelein, Ill.

FIRE EXTINGUISHER P441

Compact, lightweight extinguisher contains 6 lb of nontoxic, nondamaging carbon-dioxide gas. Unit has thumb-trigger release and self-aimed nozzle.

Randolph Laboratories, 8 E Kinzie St, Chicago 11, Ill.

CHAIN OILER P332

This solenoid-operated oiler lubricates conveyor chains automatically. Oiler feeds lubricant by gravity from a reservoir through a solenoid-operated valve and a sight-feed valve to a brush, which rides the chain. This brush spreads and wipes the desired amount of oil evenly on the chain.

Oil-Rite Corp, Milwaukee 15, Wis.

SPRAY GUN P348

Extension spray guns come in three models: EX-T, TO and AE-46. Model EX-T features 4-finger trigger control, which provides easy off-and-on operation. Model TO is the simplest and lightest extension, and has separate shutoff cocks to control fluid and air.

Eclipse Air Brush Co, 390 Park Ave, Newark 7, N. J.

TUBE EXPANDERS P302

Series 900 rolling and flaring tube expanders has been developed for installation and maintenance of superheater and small tubes in high- and low-pressure water-tube boilers.

To meet varying conditions, expanders are supplied with header mandrels 19 in. long, drum mandrels 12 in. long, and short mandrels 7 in. long.

Gustav Wiedeke Co, Richard St, Dayton 1, Ohio.

CHIPPING HAMMERS P307

Fifteen power sizes with five basic hammers make possible a wide range of chipping hammers to meet exact cutting conditions required by present-day metals. Controlled-power chipping hammers are available in normal-cut, extra-cut or super-cut design.

Ingersoll Rand Co, Phillipsburg, N. J.

AUTOMATIC OILER P360

Automatic oil lubricator for slat conveyors that requires positive timing. Oil valve opens when the tripping mechanism is actuated by the wheels outside of slat conveyor. It remains open until closed by timer.

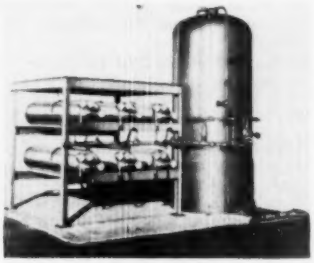
The J N Fauver Co, Inc, 49 West Hancock, Detroit 1, Mich.

CUTTING TOOL P141

Spearhead Cutter combines the functions of a circle cutter, straightedge, compass, scorer and knife in a single manually operated device.

Made of durable phenolic plastic the cutter weighs less than four ounces and is 4¼ in. long, 1¼ in. wide and ¾ in. high. It cuts accurate-size gaskets from any pliable sheet material in round, odd, straight, square, rectangular, oval or other irregular shapes. Manufacturer says device will accurately cut a ¾-in. hole in material ⅛ in. thick.

Zimmerman Packing Co, Cincinnati, Ohio



STATIONARY FIREFIGHTER P424

Centrally located steel tank, containing dry chemical and nitrogen cylinders (for pressurizing the tank), acts as stationary firefighter for wide-area plants, such as gasoline-storage areas, large chemical plants, etc. Units come in 500-, 1000- and 2000-lb capacities, and supply dry chemical up to 450 lb per min through underground piping to hose stations.

Ansul Chemical Co, Marinette, Wis.

RESPIRATOR P383

Twin-cartridge respirator *No. R 5000* is designed to protect against (1) combination of all dusts (2) organic vapors (3) acid gases (4) combined acid and organic gases (5) ammonia (6) combination of organic vapors and all dusts and (7) metal fumes.

American Optical Co, Southbridge, Mass.

FITTING CAPS P387

Chemical, foundry, power-plant users of alemite dot fittings for lubrication of equipment in dirty, dusty places can keep fittings clean with plastic caps.

Elastoplastic caps fit over ⅜-in. dot fittings. They are made of black, flexible vinylite, easily applied and removed.

S S White Dental Mfg Co, Plastics Div, 10 E 40th St, New York 16, N. Y.

PIPE THREADER P310

Portable, 160-lb, pipe-and-bolt threader, the *Chief*, for ½- to 2-in. pipe has four jaws that automatically grip the pipe and four jaws that automatically center the pipe to eliminate whipping.

Quijada Tool Co, Inc, Los Angeles, Calif.

CONNECTOR TOOL P331

Hytool is designed for use with *Hydent* connectors over a large conductor range. This aluminum-alloy tool, Catalog No. MY4C, has spring-loaded jaws holding connector-and-cable assembly. It leaves both hands free to operate the tool.

Three grooves in the tool jaws accommodate connectors for No. 9, 8, 6 and 4 stranded commercial aircraft copper conductors. Die grooves handle entire range without any adjustments.

Burndy Co, 107 Bruckner Blvd, New York 54, N. Y.

P360 • GUN-TYPE SAW—Reciprocating gun-type saw, to cut any material from rubber to stainless steel, has stroke adjustable to 2 in. It can be driven by air drill, electric drill, or flexible shaft.

Special guides for various blade widths, from ½ to 1 in., eliminate slipping and snapping. Saw has adjustable handle.

Transa Inc, Suite 440-445 Gateway Bank Bldg, Minneapolis, Minn.

FIRE EXTINGUISHER P356

Model B dry-chemical fire extinguisher, completely watertight, has specially designed seals inside nozzle and receiver.

Other features are threaded hose connections, new cartridge-guard finger grip and redesigned carrying handle. Available in 20- and 30-lb sizes. Manufacturer says freight allowances are being granted on shipments of 200 lb or more.

Ansul Chemical Co, Marinette, Wis.

OIL CUP AND GAGE P168

Combination oil cup and oil gage serves a dual purpose. It can be used as a visible oil cup to replenish oil in bearings, transmission and crankshaft cases, etc, and also as an oil gage for checking oil levels.

Trico Fuse Mfg Co, 2948 No. 5th St, Milwaukee 12, Wis.

FLARING TOOL P133

Rol-Air flaring tool #355-F can be used on copper, brass, and aluminum tubing for making flared tube joints. Ask for Bulletin No. 378.

Tool has three rollers embodied in the spreader cone, which roll the tubing end above the face of the flaring block. Original tube-wall thickness maintained throughout. Tool flares ¼, 5/16, ⅜, ½, ⅝ OD tubing.

The Imperial Brass Mfg Co, 1200 W Harrison St, Chicago 7, Illinois

PORTABLE VACUUM CLEANER P115

Shoulder-sling carry permits easy two-hand operation of portable, 7 to 16 lb, *Tornado* vacuum cleaner.

Equipment comes in four sizes with drives of 1/3, 3/5, 1 and 1 1/3 hp universal motors having permanently sealed bearings.

Breuer Electric Mfg Co, 5100 Ravenswood Ave, Chicago 40, Ill.

AUTOMATIC OILER P122

Metering type, visible oil container *No. 3000* has a needle valve for adjusting air-oil flow for top cylinder lubrication of gasoline and gas engines.

Universal Lubricating Systems, Inc, 791 Allegheny Ave, Oakmont, Pa.

STEAM-CLEANING MACHINE P416

Hypressure Jenny steam cleaner removes grease, grime and dirt from machinery or can be changed over to a heating generator with output equivalent to about 850,000 Btu. Full operating pressure is reached within two minutes from a cold start. Available in trailer-mounted, portable and stationary models. Standard equipment includes one ½-in. cleaning gun, one 25-ft length of ½-in. and ¾-in. vapor hose, and a choice of either gasoline engine or electric motor drive. Weighs about 1600 lb.

Hypressure Jenny Div, Homestead Valve Mfg Co, Coraopolis, Pa.

SOLDERING GUN P244

High-speed, single-pole electrode soldering gun, *Cal-88*, enables workmen to get into narrow spaces between relay and electronic circuit parts.

A full-view light shines on top of the electrode and the parts being soldered. Entire gun weighs only 1½ lb. It has a pistol-grip with a full 3-finger trigger that controls a dual-heat setup. Top of the trip enables the gun to put out 150 watts, and the bottom 100 watts. Unit operates on 60-cycle 110-v ac.

Calire Mfg Co, Inc, 45 Washington St, West Orange, N. J.

P1067 • TUBE EXPANDER—Electric tube rolling control eliminates factor of human judgment and determines when tube joint reaches the maximum degree of tightness. Device consists of a control mechanism, operated with a dial calibrated for the known expansion peak of each type of metal, an electric expander driving motor and either a *G*-800 or *G*-1200 ball-bearing type condenser and heat-exchanger tube expander.

Airetool Mfg Co, 334 S. Center St, Springfield, Ohio.

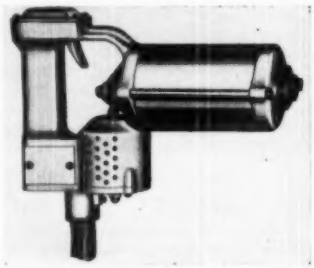
P1048 • IMPACT TOOL—Known as the *Slugger*, the size 588 impact tool is rated up to 4-in. bolt size. Tool weighs 215 lb and has a free speed of 355 rpm with 550 impacts per min. Over-all length to shoulder of anvil is 26⅝ in., side-to-center distance of the hammer case is 4 in.

Ingersoll-Rand Co, 11 Broadway, New York, N. Y.

P1137 • FLAME ARRESTER—Safety device combines the patented *VVH* pressure-vacuum vent with a flame arrester that prevents propagation of flame into storage tanks containing volatile and costly liquids.

Rubber-to-metal sealing makes the valve tight and prevents it freezing shut. Unit has been tested and approved by Underwriters' Laboratories.

Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo.



ELECTRIC HAMMER P239

Model 10 electric hammer has a self-contained rectifying unit for operation on alternating current. Tool has ⅝-in. drilling capacity.

Syntron Co, 492 Lexington Ave, Homer City, Pa.

HIGH-SPEED REAMER P220

Standard and special high-speed reamers are now made with high-cost high-speed steel firmly secured in recesses of low-cost low-carbon steel-tool bodies.

Halsey Products Co, 29706 Grand River Ave, Farmington, Mich.

WORKHOLDING TOOL P219

Time-saving, precision tool, *In-R-Tool*, is a workholding device that can be quickly used in lathes, vises, boring mills, on machine tables and in fixtures.

It is primarily an expanding arbor with a number of applications. Cores and pressure members that fit the splines of the core are interchangeable.

Layne-Held Corp, 2007-H South Shelby St, Higginsville, Mo.

HYDRAULIC FILTER P464

Micronic filter, suitable for pressures of 3000 psi, is designed to remove particles as small as 40 microns from hydraulic systems. Pressure drop is 25 psi at 10 gpm using SAE 20 oil. Device protects valves, pumps and cylinders from foreign materials. Elements are replaceable.

Waterman Engineering Co, 721 Custer Ave, Evanston, Ill.

VALVE TOOLS P237

Valve seat ring wrenches are made of heat-treated alloy steel. In use, the union bonnet ring of the valve acts as a guide, bearing against a shoulder on the wrench.

Fig. 1652 wrench has a threaded collar that provides for adjustment on different-depth valves. It is designed primarily for bronze *Renewo* and *Ferrenewo* plug-type valve from ¼ to 3 in. *Fig. 1656* wrench is designed for *AAR* plug valves from ¼ to 2 in.

The Lunkenheimer Co, Beekman & Waverly Ave, Cincinnati 14, Ohio

TEST FIXTURE P226

Hydraulic-test unit mounts on bench for checking hose assemblies, piping, tubing, gages and valves.

Equipment consists of low-pressure pump for filling equipment and a high-pressure pump, good up to 5000 psi, and a 3-gal reservoir. Higher-pressure units are available.

J N Fauver Co, Inc, 49 West Hancock, Detroit, Mich.

P783 • POCKET MAGNET—Probe is suitable for removing steel or iron particles from those areas where they would do harm to electrical instruments or delicate mechanism. Point of magnet can be extended or retracted from polished Bakelite case by turning end-knob.

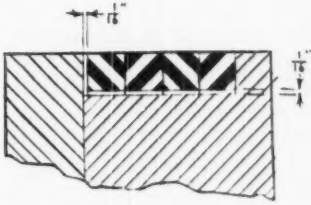
Probe is handy for use in first-aid stations to remove steel splinters from eyes or skin. Nurse or doctor can adjust strength of magnet for proper extraction to reduce pain or rupture of tissues.

General Scientific Equipment Co, 2700 W Huntingdon St, Philadelphia 32, Pa.

MAINTENANCE MATERIALS and SUPPLIES

P777 • SYNTHETIC LUBRICANTS—These synthetic oils have good low-temperature characteristics and, in addition, will not form sludges that would interfere with proper lubrication. Chemically, *Ucon* lubricants are a series of synthetic organic chemicals of the polyether type.

Carbide & Carbon Chemicals Corp, 30 E 42nd St, New York 17, N. Y.



P1028 • PISTON PACKING — *Palmetto Pisto-Ring* packing is designed to meet particular requirements of inside-packed reciprocating-pump service. These advantages are claimed: (1) molded to exact size, easy to install, no special tools or skill required; (2) flexible and resilient, will not crack; (3) impervious to boiler feedwater, salt water, fuel oil, lubricating oil, gasoline, brine, alcohol and most acids and alkalies; (4) heat resistant up to 450 F; (5) self-lubricating.

Greene, Tweed & Co, North Wales, Pa.

P1042 • METAL PRESERVER—Ensign No. 395 metal preserver, for metals in storage and transit, is said to expel moisture and seal surfaces with a dull-gloss black finish that resists acid, alkali and destructive fumes.

While dry to touch, Ensign No. 395 remains flexible and, therefore, does not crack, check, chip or peel with expansion or contraction of metals in temperatures ranging from 0 to 400 F. It may be applied by brush, spray or dipping. In maintenance applications, Ensign No. 395 may be applied directly to rusted surfaces after loose scale has been brushed off.

Ensign Products Co, 3528 E 76th St, Cleveland, Ohio.

P1043 • FINISHING CEMENT—Said to eliminate from three to six standard application steps, *Powerhouse* finishing cement is a dry, loose material of mineral-wool-fiber base, with a thermal efficiency approaching that of insulating cement.

Baldwin-Hill Co, 500 Breunig Ave, Trenton 2, N.J.

P1009 • DRY LUBRICANT — *Molykote* is a molybdenum-disulphide powder, similar in appearance to graphite, though it contains none. It will prevent galling and seizing at bearing pressures well over 100,000 psi at either high or low sliding velocities.

Alpha Corp, Greenwich, Conn.

P1081 • GREASE ABSORBENT—Low cost removal of grease, oil, kerosene and gasoline from plant floors can be done with *Kwixorb*, a grayish, granular material.

Kwixorb is non-inflammable, chemically inert so it will not burn even when soaked with oil, nor is it affected by acids or alkalis. Just cover the spillings with about ½ in. of the absorbent and rake upper surface underneath at intervals for best results.

Pennsylvania Refining Co, 2686 Lisbon Rd, Cleveland 4, Ohio.

P1066 • RUST INHIBITOR—Deeper penetration, high gloss, tougher weathering are claimed for *TOTRUST*, a rust-inhibitive paint primer and finish coat that gives 800-1000 sq ft coverage per gallon.

Applied over damp surfaces it is said to squeeze moisture to surface by capillary action and to get into rusted pits and stop further corrosion.

Wilbur & Williams Co, Greenleaf and Leon St, Boston 15, Mass.

AIR HOSE P138

Designed specifically for paint-spraying equipment the hose is light and flexible. The one-braided type comes in three sizes, ¼, 5/16 and ⅜ in. Two-braided style is 7/16-in. size.

The B F Goodrich Co, Akron, Ohio

P1142 • PIPE GASKET—Spiral-wound all-metal gasket of ferrous and non-ferrous metals is ideally suited to applications where high temperatures are encountered and the confined materials have high permeability.

Flexitallic Gasket Co, Camden, N.J.

PROTECTIVE COATING P415

Dampney *Vinyl Coating* resists alkalis and mineral acids, and is recommended for operating temperatures of minus 40 F to 160 F, wet or dry. Material is insoluble in alcohols, greases, oils and aliphatic hydrocarbons, and has low permeability to water vapor. An applied film, which is non-flammable, imparts no taste, odor or toxicity.

Dampney Co of America, Hyde Park, Boston 36, Mass.

MAINTENANCE COATING P469

A vinyl coating, *Styrenated Acid-Caustic-bond*, can be applied over damp and rusted surfaces, eliminating sandblasting.

The new formula gives a tough, chemical-resistant, air-dry paint film. Dried paint has no odor, taste or toxicity. It is said to resist flame-spread, fungus growth.

Wilbur & Williams Co, Greenleaf and Leon St, Boston 15, Mass.

ANTI-RUST PAINT P410

Rustrem clear anti-rust paint can be brushed or sprayed directly over rust without wire brushing or scraping. Can be covered with any good quality paint except lacquer and will not bleed through painted surfaces. Available in quart, gallon and 5-gallon cans and 55-gallon drums.

Speco, Inc, 7308 Associate Ave, Cleveland 9, Ohio.

CHECK THESE ITEMS, TOO

INDUSTRIAL LUBRICANT P603

All-purpose, nonmelting grease, *Plastilube*, has high adhesive qualities, excellent pumpability at low temperatures. It does not break down during work.

Warren Refining & Chemical Co, 750 Prospect Ave, Cleveland 15, Ohio.

PIPE COMPOUND P618

Pipe-joint compound, it is said, (1) clings to metal when brushed on (2) has no oil separation so it can be used "right out of the can" (3) does not harden in the can (4) does not freeze-up the joints, yet gives leakproof connection.

Hercules Chemical Co, Inc, 332 Canal St, New York, N. Y.

PROTECTIVE COATING P357

Dampney silicone coating aluminum, a semiorganic material, combines high inertness and heat stability with unusually high water repellency and low moisture absorption to provide heat- and weather-resistant surface protection.

The Dampney Co of America, Hyde Park, Boston 36, Mass.

WATER-REPELLENT COATING P538

Ranetite No. V transparent coating, containing Poly-Siloxane resin, gives outside above-grade masonry walls a transparent coating which is impervious to water and dampness. Prices are $5.50 per gal in one- and 5- gal cans, and $5.25 per gal in 55-gal steel drums.

The Ranetite Mfg Co, Inc, 1917 S. Broadway, St. Louis 4, Mo.

HIGH-PRESSURE SEAL P355

Fel-Pro, type H-P, seals are designed to handle a variety of liquids at pressures up to 600 psi and temperatures up to 250 F, in centrifugal pumps and other equipment handling crude oil, gasoline, propanes, etc.

Felt Products Mfg Co, Packing Div, 1508 Carroll Ave, Chicago 7, Ill.

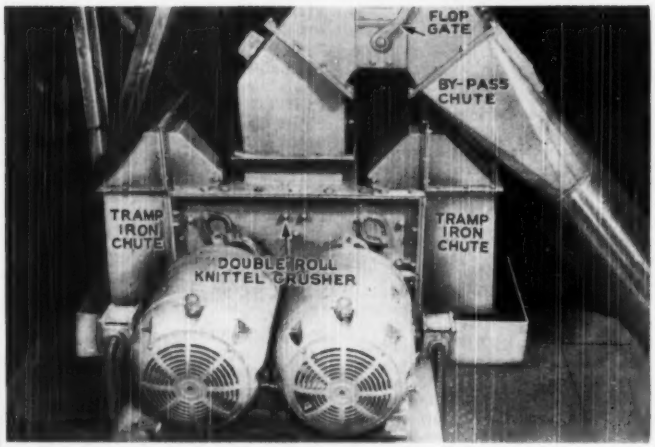
AIR HOSE P123

Three-ply fabric reinforced red-covered air hose has tube and rubber made of oil-proof rubber compounds.

B F Goodrich Co, Akron, Ohio.

MATERIALS HANDLING EQUIPMENT

We'll ask the manufacturer to send more details; send us the cards from page 181



COAL CRUSHER **P535**

Two rotors driven by separate, direct-coupled motors feature the *S-A Double-Rotor Knitted Crusher*. Synchronization is not necessary because the crushing sections operate independently. This is an important feature.

Unit is said to give the same horsepower per ton ratio with wet coal as with dry. Crusher splits the coal on initial impact, then crushes it on breaker plates. Sized slots in the crusher-grate bars set the top size of the material.

Stephens-Adamson Mfg Co, Aurora, Ill.

P1044 • PNEUMATIC VIBRATOR—Type *UH* pneumatic vibrator may be quickly attached to and removed from units where vibrator installation cannot be permanent. However, vibrating mechanism is designed to withstand continuous use.

Cleveland Vibrator Co, Clinton Ave, Cleveland 13, Ohio.

P1117 • PLATE MAGNETS—Redesign of complete line of Eriez permanent non-electric *Standard* and *Jumbo* plate magnets has resulted in a 50% increase in magnetic strength and a 30% decrease in weight. Lighter weight and compact construction enable these magnets to be installed in a minimum amount of space and make installation simple.

Eriez Mfg Co, 1177 East 12th St, Erie, Pa.

P1170 • CAR SHAKER — Hopper cars need not be uncoupled while shaker is in operation. This permits movement of cars through the unloading zone as a complete train. Cars are moved into place over conventional track hoppers in the usual manner with the aid of car hauls, spotters, switch engines or other means. After the car gates have been opened, the car shaker, which is normally suspended from a hoist, is lowered to top of the car to begin its operation. Rotation of the shaker's vibrator shaft at normal speed causes the vibrator end of the shaker to rise and fall, and impart heavy hammerlike blows to the car, equal in number to speed of the vibrator shaft. Energy of these impacts on the vertical car sides is transmitted directly to sloping portions of hopper-car bottom for loosening and unloading material.

With aid of a Link-Belt car shaker and proper spotting facilities, about eight to ten cars per hr may be unloaded. Shaker weighs 9500 lb with a 20-hp, 3-phase, 60-cycle, 220- or 440-v motor.

Link-Belt Co, 300 W Pershing Rd, Chicago 9, Ill.

P1106 • TANK-CAR FITTING—An unloading fitting weighs less than 10 lb for universal tank-car use and may be hooked up in less than one min. One man can easily lift the fitting in place and tighten the collar by hand, which eliminates need for heavy pipe wrenches.

Mead Cornell & Co, P O Box 2682, Cleveland 7, Ohio.

DOZER SCRAPER **P340**

With new bulldozer blade attached, Model D *Roadster Tournapull* can be used either as a dozer or scraper in coal stockpiling and other applications. All tools are on one rig so no time is lost in changeover. Unit can also push-load other D's in fleet operation and can be roaded under its own power over the highway.

R G LeTourneau Inc, Peoria, Ill.

SIEVE SHAKER **P608**

Small, vibrating-test sieve shaker for laboratory screen-analysis work employs six 8-in.-dia sieves. The nested sieves go into the shaker and lock in place. The shaker itself is set on three adjustable feet to permit perfect leveling. An electromagnet drive, energized by rectified, half-wave ac, gives the shaker 3600 vibrations per minute from 60 cycles.

Syntron Co, Homer City, Pa.

BELT FEEDER **P446**

Originally designed to deliver continuous stream of material from an intermittently discharging automatic bulk scale, this unit has a wide range of applications as a feeder or take-away conveyor. Variable-speed drive can be furnished, which is automatically adjustable to vary the stream to conform with the timed discharges of the automatic scale above, and so maintain a continuous, accurately weighed stream. It also features cantilever pulleys for endless belting and removable skirt plates.

Richardson Scale Co, Clifton, N. J.

COAL-CAR THAWER **P436**

Portable, trough-like deicer fits on rails beneath coal-car hopper. It burns waste oil or No. 2 oil, and throws off enough heat to melt any ice in the car pocket.

J C Corrigan Co, Inc, 41-47 Norwood St, Boston 22, Mass.

COAL LOADER **P641**

A heavy-duty loader requires no truck maneuvering if the truck is within the radius of the swiveling load-trimming discharge-conveyor. Model 544 is a heavy-duty pneumatic-tired loader, for 15-mph road speed. Easy control of loading is obtained by the hydraulically controlled trimmer. It loads highest trucks or longest trailers without requiring truck and driver to waste time jockeying into position.

Barber-Greene Co, 630 West Park Ave, Aurora, Ill.

MAGNETIC SWEEPER **P615**

Low-cost, lightweight rotary magnetic tube mounted between neoprene wheels works like a carpet sweeper. Ferrous material clings to the magnet over the entire circumference to a thickness of about $^3/_8$ in. A wiper ring pushed from one end to the other carries the ferrous material to a nonmagnetic section for unloading. Unit comes in sizes from 12 to 36 in.

Eriez Mfg Co, 7 E. 12 St, Erie, Pa.

SHEAVE **P601**

Adjustable-diameter V-belt sheave has flanges mounted on taper bushing and sleeve. This double-taper hub, in addition to providing easy mounting and dismounting of the sheave, is designed to lock the unit rigidly into a single, solid sheave. Split-taper bushing provides easy handling, on and off the shaft, adapts the sheave to any shaft size and to positive clamping action on the shaft.

The American Pulley Co, 4200 Wissahickon Ave, Philadelphia, Pa.

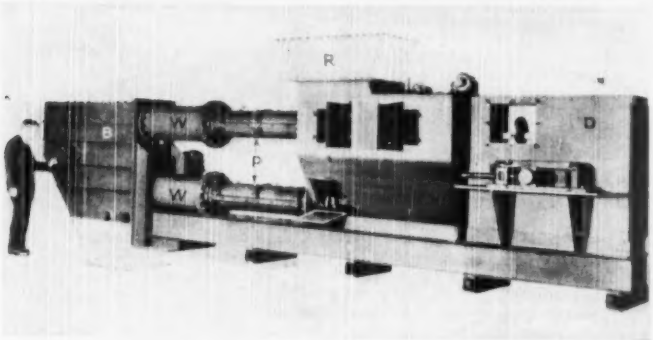
P1031 • WIRE-ROPE SWIVEL — Double roller bearings permit swiveling under full load in unit now offered for all rope applications.

Some features are: both thrust and radial roller bearings; completely streamlined bodies; heavy load capacity in relation to size; permanent lubrication; replaceable parts. Swivels are offered in five sizes: for ½, ⅝, ¾, 1 and 1½ in. wire rope. They can be had with four types of ends: eyebolt, hook-bolt, integral eye or clevis.

Flexo Machines Co, 456 N Aberdeen St, Chicago 22, Ill.

P1175 • SCREW CONVEYER — One vertical screw conveyer fills the bunkers and feeds the stockers. Coal is dumped into pit beside building, fills the bunkers and feeds the stokers, as desired. Same conveyer also transfers coal from bin to stoker.

Baughman Mfg Co, Jerseyville, Ill.



TWIN-SHELL BLENDER **P520**

Two cylindrical shells of equal diameter, joined together to form a V, make up the *P-K Twin Shell Blender*, a mixing apparatus, for blending dry materials.

Patterson-Kelley Co, Inc, 56 Burson St, East Stroudsburg, Pa.

REVOLVING JOINT **P552**

Cartridge-type revolving joint requires no bearings, lubrication or flexible hose. It is used in industries where there is heating or cooling of drum rolls such as dryers, slashers, dry cans, and calender mills. The joint provides an effective seal for air, steam, oil, gas, water and other fluids.

Rothern Engineering Co, 4911 Irving Park Road, Chicago 41, Ill.

CRUSHED-COAL FEEDER **P550**

Coal from a weigh scale to a pressurized boiler-furnace hopper is handled by a chain and circular flight assembly running in a closed circuit. Conveyor speed can be regulated to give close control of coal feed. Conveyor consists of a drive and takeup *D*, receiving section *R*, pneumatrols *P*, water-cooled section *W*, and idler box *B*.

Pressure air goes into the hopper, and the coal feeds directly into the air stream. A vibrating plate feeder in the idler box can have its angle and stroke adjusted.

Between the idler box and pneumatrols a watercooled section reduces heat flow to the latter's seals.

Hapman Conveyors, Inc, 2405 W. McNichols Road, Detroit 21, Mich.

MECHANICAL TRANSMISSION EQUIPMENT

including speed changers, couplings, clutches, belts, bearings, etc.

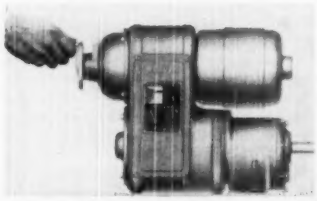
PORCELAIN BEARINGS **P606**

Self-lubricating, porcelain-enameled, cast-iron or steel bearings serve where ordinary bearings cannot. They can be applied for use in high temperatures, where metal contacts may cause electrolysis, or where corrosive fluids are employed. A synthetic rubber journal that fits over the shaft to absorb shaft whip and vibrations runs against the bearing surface. This contact is the only limitation on the corrosive-fluid service.

Porcelain Enamel Institute, Industrial News Service, 521 Oliver Bldg, Pittsburgh 22, Pa.

P1076 • COUPLING COVERS—Plastic covers for chain couplings are molded of rag-filled phenolic plastic for maximum strength with minimum weight. The plastic material used is highly resistant to practically all acids and alkalis and is immune to rust.

Morse Chain Co, 7601 Central, Detroit 8, Mich.



VARIABLE-SPEED DEVICE **P578**

Small, compact motorized units in fractional-hp sizes are now available. Like the larger models, the small units combine motor, speed-varying mechanism and reduction gears in one package. Sizes are 1/3, ½, and ¾ hp for stepless speed ratios of 10 to 1 for each size. Their compactness makes them well suited to applications where space is limited. A total of 24 different assembly combinations for vertical and horizontal floor or wall mounting can be had.

Reeves Pulley Co, Columbus, Ind.

FLEXIBLE COUPLING **P551**

Ease of installation and large bore capacities feature couplings designed for motor- or engine-driven pumps, compressors, etc, of 50 to 1000 hp.

Couplings are available with several types of cushion materials, each adapted to a particular service indoors or out.

Lovejoy Flexible Coupling Co, 5001 W. Lake St, Chicago 44, Ill.

P1030 • VARIABLE-SPEED UNIT—Designed for accurate and dependable variable-speed control of light machinery without stopping the machine, *Vari-Speed Jr* is a unit assembly. It comprises a self-adjusting V-type pulley that may be mounted on shaft of constant-speed motor and V-belt connected to driven machine.

As motor is moved back on sliding or pivoting base, V-belt rides on a smaller diameter in the expanding pulley, and speed delivered to machine is decreased. As motor is moved forward, pulley con-

tracts under spring tension, belt rides at a greater diameter and speed is increased.

Vari-Speed Jr is made in six sizes for service with any standard constant-speed motor up to 1½ hp and any A or B V-belt. Unit delivers variable speed between 1¾ to 2¾:1. Company furnishes tables for selecting correct size unit and driven pulley for desired speed range with given motor.

Reeves Pulley Co, Columbus, Ind.

ROLLER CHAIN P251

BA assembly consists of a 5-ft basic length of standard riveted roller chain with a new single-pin connector. Connecting link uses one detachable pin and one rivet.

Chain Belt Co, 1600 W Bruce St, Milwaukee 4, Wis.

P1108 • AUTOMATIC CLUTCHES—Fractional and small-horsepower automatic clutches are adjustable on the job for a wide range of capacities and other drive characteritiscs. They are used on motors or engines to make starting easy and can be adjusted for rate of load acceleration by adjustment of friction shoes and springs.

Centric Clutch Co, Cranford, N. J.

VERTICAL SPEED-REDUCER P653

Designated as Type ND (gear shaft downward) and Type NU (gear shaft upward), these units are particularly suited for agitators and mixers along with use in connection with supplementary low-speed, spur-gear drives without outboard bearings.

Continuous lubrication of gear-shaft bearing is insured by displacement-type pump on shaft end. External radial of thrust loads are taken up in heavy tapered roller bearings.

Cleveland Worm and Gear Co, 3262 E Eightieth St, Cleveland 4, Ohio.

P1254 • CLUTCH FACING—Made of asbestos-metallic yarns, this spiral-wound facing matches specific action of any clutch design. This facing offers the flexibility desirable in handling during installations, has low torque variation under a wide range of temperature and load conditions and minimum chatter in all engagements—forward or reverse.

Johns-Manville, 22 East 40th St, New York 16, N. Y.

P1071 • FRACTIONAL-HP CLUTCH—Sintered-metal powder parts for a clutch for fractional-horsepower motors have cup and flange produced from an iron-base powder mix while the brake shoes are made from a leaded-iron-copper material.

Yoder Clutch Co, Orrville, Ohio.

MAGNETIC PULLEYS P647

Improved models of permanent magnetic pulleys provide increased magnetic power, lighter weight and greater structural strength. They are made in sizes for 12, 15, 18, 20, 24 and 30 in. belts.

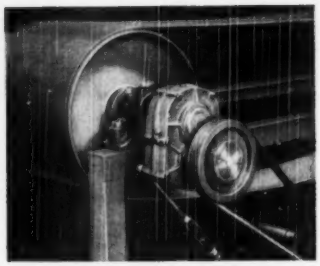
Eriez Manufacturing Co, 7 E. 12 St, Erie, Pa.

SPEED REDUCER P326

Torque-Arm Speed Reducer consists of a reducer with fixed 15 to 1 ratio motor-driven through a V- or flat-belt. Any output speed from 13 to 133 rpm can be obtained through use of stock sheaves. Reducer contains a double train of helical steel gears.

Unit comes in six sizes with capacities up to 28.5 hp. Bulletin No. A-470 gives complete information, also tables for easy selection of correct size.

Dodge Mfg Co, Mishawaka, Ind.

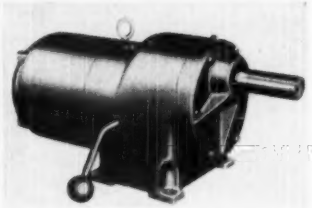


MOTOR-GEAR UNIT P555

Type R3C features a combination electric motor and a 4-speed transmission having both primary- and secondary-gear reductions. Drive delivers full-rated in each of four speeds.

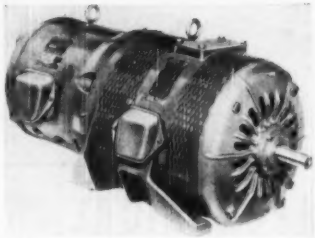
Units are designed for polyphase, ac, 25, 50, and 60 cycles below 600 v. All R3C units have primary selective gear ratios of 4.15, 3.15, 1.85 and 1 to 1.

The Lima Electric Motor Co, Dept AB59, Lima, Ohio.



P1082 • VARIABLE-SPEED DRIVE—An ac motor provides variable-speed output with a constant torque characteristic through an eddy-current clutch without usual motor generator set or exciter. Continuous-duty speed ranges as high as 10 to 1 are possible in the smaller sizes; intermittent duty speed range is infinite in all sizes.

Louis Allis Co, 427 E Stewart St, Milwaukee 7, Wis.

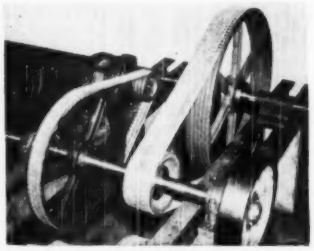


WANT MORE INFORMATION?

Send in cards on page 181

P1063 • MULTIPLE V-BELT—Quick detachable *Vee-Ply* V belt is designed for service emergency breakdowns and can be adapted to most V-belt drives. Suited for use on drives requiring dismantling a part of the machine to install endless belts, it is easily uncoupled from roll stock as needed and is adjustable to any length.

Worthington Pump & Machinery Corp, P O Box 953, Buffalo 5, N.Y.

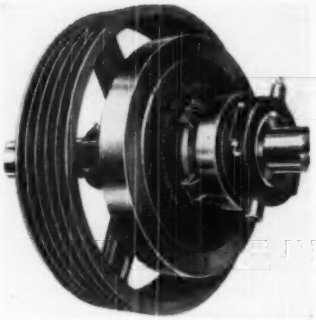


CLUTCH P151

Type SF clutch mechanism for starting and stopping the flow of mechanical power. New design incorporates an extended bronze bushed sleeve, tapered on the outside diameter to fit tapered bore of sheave.

To assemble sheave on sleeve, remove grease fitting, place sheave over taper, and use the standard pull-up bolts to draw sheave snugly into place. This new design eliminates the operations often necessary with straight sleeve in re-boring the sheave, drilling and tapping into web of extended sleeve bowl, and cutting keyways.

The Edgemont Machine Co, Dayton, Ohio



P1033 • PILLOW BLOCK — Unit-type anti-friction bearing pillow block holds fast with a vise-like grip to shafts revolving at high speeds. Equipped with either ball or spherical roller bearings, block has tapered inner ring and tapered split sleeve which, when ring is pressed against it with a tightening nut, contracts and wraps around the shaft.

SKF Industries, Inc, Philadelphia, Pa.

FLEXIBLE COUPLING P642

This coupling has been redesigned after ten years of service. Improvement in rubber composition and bonding has increased torque capacity 20% above previous values.

Redesigned components are interchangeable with the equivalent ones of all couplings now in use, and standard parts may be combined to allow six different mounting arrangements including flange mounting on a flywheel.

Falk Corp, 3027 W. Canal St, Milwaukee 8, Wis.

VARIABLE-SPEED UNIT P338

This unit consists of a control unit (where the incoming ac is changed to dc) a control station and a ¾, 1, 1½ or 2 hp dc motor. Speed range is 290 to 2300 rpm continuously and intermittently down to 80 rpm.

Reliance Electric and Engineering Co, 1088 Ivanhoe Rd, Cleveland 10, Ohio.

P1115 • ROUND RUBBER BELTS—Bias-cut jackets protect inner structure and insure flexibility. Belts are recommended for quarter-turn, mule, serpentine, cross drives and other special wheel-turning applications. They can be shifted on step pulleys for speed changers. Belts are made in diameters of 3/16 to ½ in. and from 6⅞ to 156⅜ in. inside circumference.

United States Rubber Co, Rockefeller Center, New York 20, N.Y.

P1107 • PILLOW-BLOCK BEARING—Heavy-duty spherical roller-bearing pillow blocks are for service in industrial, mining, construction, lumbering, petroleum and other heavy-duty fields. They are available in 2 7/16- to 8-in. bore sizes, are self-aligning, have either felt or triple metallic labyrinth seals, and are built for either straight shafts or adapter-type mountings.

Fafnir Bearing Co, New Britain, Conn.

P1252 • ANGLE GEAR UNIT—Right-angle drive unit has special spiral bevel gears, case hardened, matched and lapped in pairs after hardening. Both input and output shafts are 1¼ in. dia, and are mounted in precision-tapered roller bearings.

Dept 60, Ohio Gear Co, 1400 E 179th St, Cleveland, Ohio.

SHAFT SEAL P515

Repsco rotary-shaft seal is fabricated to fit any pump without costly alterations, is easily installed, compensates for end thrust and misalignment.

Republic Supply Co, Houston, Tex.

METERS AND INSTRUMENTS ELECTRICAL

CURRENT INDICATOR P170

Mini-amp indicates load current of motors and other ac-operated electrical devices. Device is less than 2x2x1 in. thick with an opening in the center to take the carrying current line.

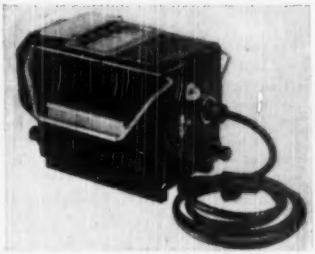
A neon indicator lamp glows at minimum amperage flow depending on number of turns through center. Available in different ampere ratings, these devices can serve to check motors and other circuits for overloads.

Industrial Devices, Inc., Edgewater, N.J.

P1068 • AC LOAD VISUALIZER—Besides serving as a standard 0-2.5/5/25/50-amp ammeter and a 0-150/300/600-v voltmeter, the load visualizer may be used with a split-core or conventional instrument transformer to extend range for determining watts, vars, volt-amperes, and power factor. Designated as Type AF-2, the new instrument can be used in load surveys, induction motor tests, reactive power studies, and power factor checks in power and lighting circuits.

Unit is self-contained to 50 amp, extended to 1000 amp by split-core current transformer. This hook-on feature enables surveys to be made without interrupting service or cutting conductors.

General Electric Co, Schenectady 5, N. Y.



INSULATION TESTER P457

In this rectifier-operated megohmmeter, the hand generator is replaced by a power-pack consisting of a constant-voltage stepup transformer and selenium rectifier. Instrument is suitable for measuring insulation resistance of control circuits and general power equipment.

James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

P1074 • EMERGENCY ALARM — *Silencer* may serve with any electrical alarm circuit that indicates emergency conditions such as pressure, liquid level, temperature, smoke, gas, overload, etc. It provides continuous protection even though warning sound is stopped.

When emergency condition arises alarm is stopped by pressing button on side of case. Glowing red light remains on until trouble is corrected. When circuit is clear, the *Silencer* automatically resets itself and light goes out.

Automatic Control Co, St. Paul 4, Minn.

P1166 • PANEL INSTRUMENTS—Designated as Types *DO*-81 (direct current), *DO*-82 (thermocouple), and *DO*-83 (rectifier), these new instruments use standard 3½-in. round and square cases with 250-deg scales 4.92 in. long for good readability. Designed for general industrial applications, as well as for manufacturers of electronic devices, testing equipments, and similar apparatus, the instruments have permanent-magnet, moving-coil mechanisms.

General Electric Co, Schenectady 5, N.Y.

P1004 • WHEATSTONE BRIDGE — Electronic *Resistohmeter* measures resistance and insulation resistance in low and extremely high ranges. A *6E5* electron-ray tube replaces the usual galvanometer.

Crown Industrial Products Co, 1309 W 69th St, Chicago, Ill.

WE'LL GET YOU MORE DETAILS if you send in cards on page 181

P1156 • INSULATION TESTER—Tester takes insulation resistance and dielectric absorption measurements on cables, transformers, rotating machinery, condensers, etc. Breakdown voltages also can be accurately determined with a minimum of burning damage.

Radio Frequency Laboratories, Inc, Boonton, N.J.

P1134 • COMBUSTION SAFEGUARD If normal operation fails at any step, the lighting-up cycle stops and closes any valve that has been opened. Should the power supply go off, the entire system shuts down. *Pyrotrol* comes in six models.

Sales Promotion Dept, Bristol Co, Waterbury 91, Conn.

P1126 • SMOKE-DETECTOR—Selector valving system enables smoke detection for fire protection in four spaces simultaneously. A centrally located control cabinet receives samples from accumulators in remote spaces.

Walter Kidde Co, 40 E 34th St, New York 16, N.Y.

P1212 • pH ELECTRODES—Two improved electrode assemblies are available for service with L & N recorders and controllers: one for continuous sampling lines and the other for immersion in open channels and tanks.

Body of the sampling-line assembly is a single block of clear plastic measuring 4¼ by 1⅜ by 4¾ in. It has low capacity, which permits a high flow rate and minimizes electrode coating by suspended material. Inlet and outlet connections fit standard ¼-in. pipe.

Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa.

RESISTANCE METER P249

Vibropot pushbutton-operated instrument is an accurate dc ohmmeter and ac impedance bridge, as well as an instrument applicable for earth-resistivity measurements. Suitable for testing resistance to earth of man-made grounds.

Associated Research, Inc, 3758 West Belmont Ave, Chicago 18, Ill.

INSULATION TESTER P325

Combination hand crank and rectifier-operated megohmmeter. Separate rectifier supplies 500-v dc from any 115-v ac 60-cycle outlet. Most important application is in communications, cable wiring and control installations where a great many tests are to be made and an ac outlet is available. Well suited where continuous operation of the instrument is desired, as in observing dielectric absorption effects.

James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

FLAME DETECTOR P342

Protectoglo eliminates previous limitations in electronic safeguards for many processes. Used on oil- or gas-fired burners, the instrument operates on flame-rectification principles.

Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa.

WATTHOUR METER P152

Socket-type meter uses unit construction of all four major assemblies: base, electromagnet, damping system and register. This construction permits meter to keep in step with load growth since current and potential coils can be quickly replaced with coils of other ratings.

Roller-Smith, Dept EM, Bethlehem, Pa.

FLAME SAFEGUARD P536

Fireye system FF-1, consisting of a photoelectric scanner, 45PH5, and programming control 24PJ8, provides complete flame-failure protection for commercial gun-type light-oil burners. In a light-off failure, lockout occurs 5 sec after power has been applied to motor and ignition. If failure occurs during operation lockout takes place within 2 to 4 sec.

Combustion Control Corp, 77 Broadway, Cambridge 42, Mass.

MEGOHMMETER P253

An instrument designed for measurement of electrical resistance over a range from 300,000 ohms to 20,000,000 megohms. Power supply for this instrument is from 110 to 115 v, and 190 to 260 v ac source. There are two test potentials of 85 and 500 v dc.

Herman H Sticht Co, Inc, 27 Park Place, New York, N. Y.

P725 • SPLIT-CORE METER — Combined ammeter and voltmeter has five current ranges up to 1000 amp, and three voltage ranges up to 700-v. Model 633 Type *VA*-1 designed to measure current and voltage without interrupting electrical service.

Jaws accommodate bare or insulated conductors up to 2-in. dia. Voltage measurements are made by connecting a set of clip-on leads between the line and set-screw terminals on side of meter.

Weston Electrical Instrument Corp, 617 Frelinghuysen Ave, Newark 5, N. J.

VOLTAGE TESTER P335

New adaptation of *Mini-Volt* known as Model 410A, is accurate within 2 volts at 110-v ac. Glow-lamp indicator is guaranteed for 25,000-hr operation. Device can check voltage; tell whether ac or dc; check for continuity, blown fuses, grounds, etc. A new expanded scale is centered on the common 110- and 220-v points.

Industrial Devices Inc, Edgewater, N. J.

P1245 • MICROHM METER—Model 151-S microhm meter is a 5-range instrument for checking low-resistance values in circuit-breaker contacts, cable joints, bus-bar connections, limiters, windings, material tests, etc. Microhm ranges are 0-75, 0-750, 0-7500, 0-750,000 microhms.

J W Dice Co, Englewood, N. J.

P1061 • PANEL INSTRUMENTS — Line of 2½-in. panel instruments is suitable for electronic devices, test equipment, etc, when only limited mounting space is available. Meters are identified as Types *DW*-71 (dc current), *DW*-72 (thermocouple, *DW*-73 (rectifier) and *AW*-72 (iron-vane).

They are available in either round or square cases in all preferred ratings. Housed in black molded and moisture resisting dustproof textolite cases, the instruments are accurate within 2%.

General Electric Co, Schenectady 5, N.Y.

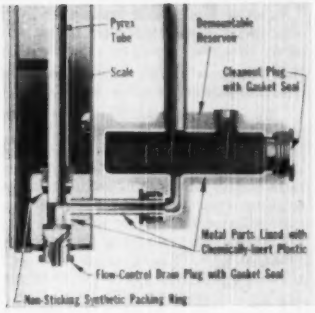
COMBUSTION SAFEGUARD P112

Industrial and commercial fuel-fired boilers can make use of electronically operated flame safeguard, *Flame-otrol, 1300.*

This control uses the flame itself as a working part of the protection circuit to give instant switching action on flame failure. The 1300 series has a guaranteed safe-start. In addition it has interchangeable plug-in units for increased program variety, easily adjustable to a wide selection of purge, preventilating and ignition program cycles.

Wheelco Instrument Co, 847 W Harrison St, Chicago 7, Ill.

Flowmeters, gages, tachometers and other METERS AND INSTRUMENTS of a non-electrical nature



MANOMETER **P354**

Regularly available in 14 lengths with scales from 12 to 1.6 in., these manometers are good for line pressures up to 200 psi. They can be mounted flush, flat on a panel or wall, or on a table tripod.

King Engineering Corp, Box 100, Ann Arbor, Mich.

P1231 • BUFFER SOLUTIONS—Calibrating any pH instrument can be done with new line of buffer solutions. Nominal pH values are 4, 7 and 9, actual, 4.01, 6.86 and 9.16 at 25 C.

Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa.

P1203 • GAGE PROTECTOR — Model DV15-200 gage protector comes in sizes 30 to 3000 psi. It automatically cuts gage out of circuit if line pressure rises above safe operating range of gage.

Greer Hydraulics Inc, 454 18th St, Brooklyn, N. Y.

LEVEL INDICATOR **P635**

Illuminated-dial indicator, Model 240, operates from a 3 to 15 psi pneumatic transmitter or direct from valve-loading pressure to give sensitive, accurate readings of liquid level.

A solid-red band on the translucent dial makes it easy to read from a distance. If desired, high- and low-level adjustable mercury alarm switches can be wired in series with a hermetically sealed standard Panalarm signaling unit. This lights up a red bull's eye and sounds a warning horn if levels get beyond selected limits.

Panalarm Prod Div, Panellit, Inc, 7218 N. Clark St, Chicago 26, Ill.

FLOW GAGE **P577**

Magna-Sight flow gage consists of a short body with flanged or screwed pipe connections. It accommodates a fixed orifice in the lower end. A tapered metering plug rises and falls with fluid flow rate in accordance with variable area metering principles. Metering plug carries a permanent magnet and a hollow, cylindrical, soft-iron follower rides in an external slot.

Fischer & Porter Co, 96 County Line Road, Hatboro, Pa.

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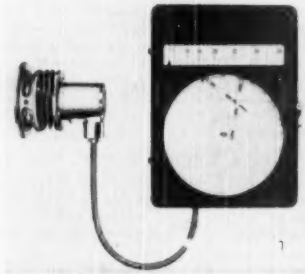
Use cards on page 181



P1206 • PYROMETER • *Pyrovisor* indicates, records, or controls temperatures up to 4000 F. Temperature-sensitive head produces a 99% response to a temperature change within one second, says the manufacturer.

Bristol Co, Waterbury 20, Conn.

GAGE **P235**

Illuminated gage has dial, with black background with ultraviolet phosphorescent pointer, numerals and graduations. Plain white illumination can also be supplied. Gage comes in standard 4½-, 6- and 8½-in. dial sizes.

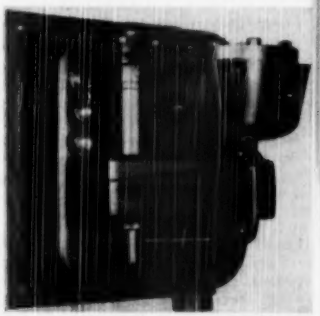
Helicoid Gage Div, American Chain & Cable Co, Inc, Bridgeport 2, Conn.

DUAL-BULB THERMOSTAT, P 104, controls supply-water temperature in a hot-water heating system according to the action of separate outdoor- and indoor-mounted bulbs.

Barber Colman Co, Rockford, Ill.

P1213 • POTENTIOMETER — Portable potentiometer, designed for corrosion field work, provides fast, accurate and dependable readings over a wide range when investigating galvanic and electrolytic action along pipelines, cables and other buried metal structures.

Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa.



P1056 • FLOWMETER — *Hays-Penn Magna-Clutch* flowmeter has five adjustable range tubes for use on from 17 to 750-in. water differential. Working pressures are 1500 and 2500 psi.

Hays Corp, Michigan City, Ind.

P1241 • TACHOMETER GENERATOR—Device is for accurate speed measurement of steel- and aluminum-mill machinery, mine hoists, wire-forming machines, paper-mill drives, etc. Available in three models, the new generator is totally

enclosed and features rubber-mounted ball bearings and an *alnico* permanent-magnet field (no separate excitation is required).

Output voltage of generator is directly proportional to speed. Sufficient power is produced for (1) control purposes and operation of an instrument simultaneously, or (2) operation of several instruments in parallel. Unit operates in either direction; clockwise and counterclockwise rotation can be indicated by a zero-center instrument.

General Electric Co, Schenectady 5, N. Y.

SMOKE-DENSITY INDICATOR P399

Continuous indication of boiler flue gas can be had with photoelectric smoke indicator *2A10C*.

Indicator consists of a photoelectric control, a light source and a densometer. The control consists of a phototube and an electronic amplifier that operate a dual-relay system and indicating meter in the densometer. The photoelectric control and light source mount on opposite sides of the flue or breeching.

Photoswitch Inc, 77 Broadway, Cambridge 42, Mass.

P1006 • TACHOMETER — Resonant-reed tachometer requires no contact with rotating element and imposes no load on machine under test. Speed check is made by simply touching instrument to machine casing.

Device cannot be injured by overspeeding and requires no maintenance. Instrument is available in various ranges between 1000 and 13,000 rpm.

James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

P978 • DIESEL PYROMETER — *Alnor* 1160 pyrometer, a continuously operated monitoring instrument, automatically measures cylinder exhaust temperatures of diesels. Designed to reduce personal attention, device can be equipped with an excess-temperature cutout which actuates alarm systems.

Illinois Testing Laboratories, Inc, 420 N LaSalle St, Chicago 10, Ill.

FLOW CONTROLLER P544

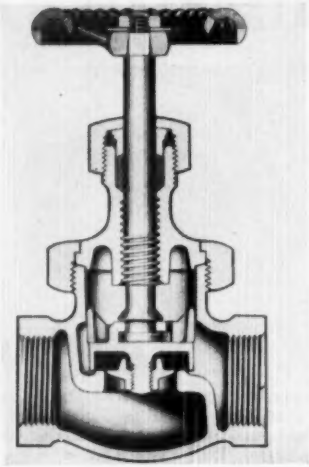
Veriflow meter and *Veritrol* indicates and controls corrosive liquids without using weigh tanks, orifice plates or gage sticks. Measurement is by volumetric principle.

The Hays Corp, Michigan City, Ind.

P1218 • TEMPERATURE CONTROLLER—Device incorporates electrical proportional control and measures temperature by a remote-bulb-thermal system. Unit has electrically operated motor-driven control valve. It is suitable for industrial temperature control as well as for refrigerating, heating and air-conditioning services.

Minneapolis-Honeywell Regulator Co, Industrial Div, 4458 Wayne Ave, Philadelphia 44, Pa.

PIPING, VALVES and



LOW-PRESSURE VALVE P513

Gas valve of globe, angle and check design for liquefied petroleum gas service has been tested and approved by Underwriters' Laboratories, Inc, for use up to 250 psi maximum. All three types have screwed ends, in sizes from ¼ to 2 in., inclusive.

Crane Co, 836 S. Michigan Ave, Chicago 5, Ill.

P1147 • VALVE CONTROLLER—*Positrol* Series 3500 valve controller is a force balance-type unit available with or without a bypass and may be used as a remote position indicator.

Fisher Governor Co, Marshalltown, Iowa.

P1138 • RELIEF VALVE—Freon relief valve *GGA*½.2 has been thoroughly tested and found acceptable by ASME. The valve assures tight seating and permits installation of a safety-head rupture disk on its outlet.

Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo.

TO LEARN MORE ABOUT ANY NEW product, send in cards, page 181

P1214 • RUBBER-LINED VALVE—Type 709 rubber-lined valve is a 30-in. 50-lb cast-iron unit equipped with 125-psi flanges and a renewable one-piece rubber seat. It is good for a temperature range from minus 20 to 200 F. Special handwheel control has a fully enclosed gear-reduction drive that can easily be adapted to automatic control.

Valve is available in smaller or larger sizes in all materials and for higher pressures.

R-S Products Corp, Wayne Junction, Philadelphia 44, Pa.

HANDWHEEL VALVE P145

Continuously connected handwheel positions diaphragm-controlled valve under any condition regardless of instrument air pressure on the diaphragm or in opposition to the spring. Stops can be set to limit valve stroke to 0 to 100% of travel.

Position indicator shows the valve plug position and setting of the travel stop. It also shows the percent of free travel of the valve plug and in what portion of the valve stroke-free travel occurs.

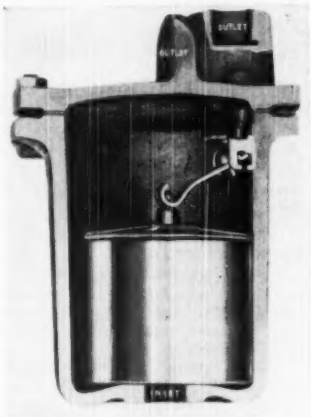
Hammel-Dahl Co, 243 Richmond St, Providence 3, R. I.

GAS VALVE P240

Series 3500 solenoid gas valve is designed for space heaters, furnaces, central-heating equipment, conversion burners, etc.

Closing pressure is achieved by the combined force of (1) compression spring, pushing down on the plunger, (2) plunger assembly, which is heavier than that of ordinary solenoid valves and (3) pressure of the gas itself. Positive shutoff is assured by a seat of special synthetic material, unaffected by heating gas.

Perfex, Corp, Milwaukee, Wis.



P1202 • STEAM TRAP—*Duo-Step Levarage* steam trap has a double fulcrum point and venting mechanism to double its drainage capacity.

Clark Mfg Co, 1830 E 38th St, Cleveland 14, Ohio.

FITTINGS, including traps, strainers, joints, tubing, etc.

SHOCK ABSORBER **P314**

Compact liquid shock absorbers eliminate shock and hammering in pipelines and liquid systems. There are no moving metal parts. A rubber cushion, encased in a spherical metal chamber, absorbs the shock. This cushion pulsates constantly with changes in system pressure.

R-S Products Corp, Wayne Junction, Philadelphia 44, Pa.

FLEXIBLE TUBING **P345**

Abrasion-resistant flexible tubing is designed specifically for conveying abrasive material. Fabricated from galvanized-steel strip, tubing is fully interlocked, and incorporates a galvanized-steel strip inner liner as an integral part of the tube.

Liner laps over spaces between the tube convolutions, giving a smooth inner surface to reduce friction and allow free flow of material being conveyed.

Chicago Metal Hose Corp, 1302 S. Third Ave, Maywood, Ill.

SOLENOID VALVE **P352**

Series No. 4000 solenoid valve, designed for normally closed operation, uses a special dashpot to eliminate water hammer from sudden valve closing. Dashpot slows closing action of the valve 1½ to 2 sec. Valve handles temperatures up to 400 F. Small sizes will operate under differential pressures up to 150 psi.

Johnson Corp, Three Rivers, Mich.

P1032 • GLASS-PIPE COUPLING—Threaded metal coupling simplifies installation of glass piping by replacing 3-bolt triangular metal flanges. Use of wrenches is no longer necessary.

Makers claim perfect alignment is assured, and danger of breakage because of uneven take-up is eliminated. Installation time is reduced up to 60%. Metal couplings are available from stock in sizes ¼, ½, ¾ and 1 in. for making glass-to-glass or glass-to-metal connections.

Fischer & Porter Co, Hatboro, Pa.

P1211 • REVERSIBLE VALVE—Foxboro *Stabilflo* valve is designed so it can be changed from "air to open" to "air to close" or vice versa without special tools or shutting down controlled flow.

To reverse action of valve motor it is only necessary to remove housing assembly, rotate it ¼ turn, and replace it. Design is now standard for *Stabilflo* valves in the commonest sizes.

Foxboro Company, Foxboro, Mass.

LEAD-LINED FITTINGS **P428**

Carbon-steel fittings of welded construction are lined with a bonded lead for chemical-handling and similar service. Lead will not separate or come off unless heat is applied too close to its melting point, 620 F. Full-faced flanges are machined.

A Gunthard Co, Ennis, Texas

P1208 • PIPE STRAINER—Strainer is designed to protect steam traps, reducing valves, and temperature-control devices. Sizes range from ¼ to 2 in. for steam pressures up to 250 psi or cold service to 400 psi. Cast-steel units are available for steam pressure to 600 psi in sizes from ¼ to 4 in.

Strong, Carlisle & Hammond Co, Cleveland, Ohio.

BRONZE VALVE **P507**

Hancock bronze valve with 500 Brinell stainless-steel seats and disks in sizes of ¼ through 2 in., and in globe angle types with screwed ends. Designed for pressure up to 150-psi saturated steam and non-shock cold water, oil or gas.

Manning, Maxwell and Moore, Inc, Watertown 72, Mass.

STOP VALVE **P353**

Figure 444 series stop valves are constructed of drop-forged steel and are available with bolted or union bonnets in sizes ¼ through 2 in., and with screwed or welding ends. Built of carbon or chromium molybdenum steel for two ranges of service conditions, they are rated for 600 psi at 900 F, and 1500 psi at 850 F, for steam, oil and gas service.

Edward Valves, Inc, East Chicago, Ind.

AIR VALVES **P238**

Hi-Cyclic air valves will control the stroke of an air cylinder within 0.001 in., stop and return the stroke at any point without overtravel, control stroke speed in either direction, reciprocate mechanically or electrically and control the pressure in both ends of the cylinder, says the manufacturer.

Model B-2 double solenoid valve is 9¾ in. long, 3 1/16 in. wide, and 5 5/16 in. high.

Beckett-Harcum Co, Wayne Road, Wilmington, Ohio

P919 • VALVE OPERATOR—Simplified fluid motor operator for gate valves can easily be adapted to standard valves in stock or to those already installed. The device may be operated by water, oil or compressed air or gas at 40 to 300 psi.

Valves equipped with the new fluid motor operator are available in most types of Crane iron bodies in sizes 4 to 30 in.

Crane Co, 836 S Michigan Ave, Chicago 5, Ill.

CONTROL VALVE **P511**

Atlas No. 235 adjustable lift-opening lever-operated control valve provides an easy method of fixing the valve lift at the required position within range of the valve movement. Valve is equipped with a flexible cam sheet attached to cam arm, which is rotated by a lever. Curvature of cam sheet is adjusted by a series of setscrews.

Atlas Valve Co, 282 South St, Newark, N.J.

ANTI-SIPHON VALVE **P619**

New angle-type, anti-siphon valve, Type A, is said to be the only one available in 1¼, 1½ and 2 in. sizes, for 5- or 10-ft head pressures, that Underwriters' Laboratories, Inc has approved for No. 6 oil.

Preferred Utilities Mfg Co, 1860 Broadway, New York, N. Y.

WELDED PIPE **P626**

Continuously welded pipe of nickel-copper, low-alloy steel, *Yoloy* is easy to weld, bends and fabricates easily, has high tensile strength, is resistant to abrasion, has high resistance to corrosion, shock and vibration.

Youngstown Sheet and Tube Co, Parker and Wallis Aves, Youngstown 1, Ohio.

SWIVEL JOINT **P305**

Little turning torque need be applied to new rotary swivel pipe joint because wedge action has been largely eliminated.

Joint performs without leakage at high temperatures; extra heavy models are available for extreme pressure and vacuums. Successful performance has been obtained at continuous rotation up to 30 rpm. Available in 90-deg angle and straight designs in ⅜- and 1-in. pipe sizes.

Barco Mfg Co, Dept 109, 1801 West Winnemac, Chicago 40, Ill.

SHUTOFF VALVE **P362**

Series 21 safety shutoff valve is designed to protect furnaces against dangerous accumulations of liquid or gas fuel in the event of power failure.

The North American Manufacturing Co, 4455 East 71st St, Cleveland 5, Ohio.

EXPANSION JOINTS **P624**

Compact, corrugated, packless, in-line expansion joints of copper, stainless steel or other alloys come in two types: (1)

controlled flexing joints with control rings for high pressures (2) free-flexing without control rings for lower pressures. These joints are available in complete size range from 3 to 24 in. I.D.

Chicago Metal Hose Corp, 1306 South Third Ave, Maywood, Ill.

EASY-PACK VALVE P518

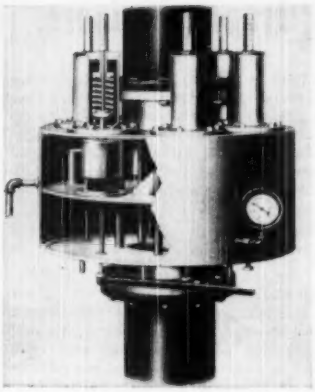
Fig. 444 series globe and angle stop valves are available in 600- and 1500-psi static-pressure classes. Valves are drop-forged steel and can be had with either bolted or union bonnets and with screwed or socket welding ends. Valve is OSY type with bolted glands for easy packing.

Edward Valves, Inc, East Chicago, Ind.

PNEUMATIC OPERATOR P365

A pneumatic power operator for valves, dampers and other control devices employs a reversible pneumatic motor and gear-driven screw stem. It combines the features of a self-locking stem and continuously connected handwheel in a compact design.

Conoflow Corp, 2100 Arch St, Philadelphia 3, Pa.



P1139 • SWIVEL JOINT — High-temperature swivel joint comes in eight different styles for full 360-deg turning in 1, 2 or 3 planes. It operates at 600 F and 300 psi. Swivel joint is available in ¾, 1, 1¼, 1½, and 2 in. sizes with either threaded or flanged ends.

Chiksan Co, Brea, Calif.

AUTOMATIC VALVES P344

Type 135 VW maintains steam pressure at any desired point between 0 and 20 psi; type 136 VW is an automatic relief valve for vacuum service. Valves are multi-port design, suitable for heating systems, power plants and process application.

Regulation of inlet pressure from closed to open valve position is accomplished because: (1) spring is unusually long, and its several inches of initial compression minimize increases in spring tension from valve lift (2) effective area of the cup-type inner valve is constant at all positions of valve opening; (3) velocity head of steam flowing through valve is used to increase static pressure in the cup, overcoming the small change in spring tension as the valve approaches full-open.

Klipfel Valves, Inc, Div of Hamilton-Thomas Corp, Hamilton, Ohio.

P1143 • VALVE ACTUATOR—Lightweight, compact and leakproof actuator for pneumatic or hydraulic operation is available for Grinnell-Saunders diaphragm valves. Actuator uses Bendix-Westinghouse *Rotochamber* principle of a rolling-sleeve seal.

Grinnell Co, Providence 1, R.I.

TURBINES, DIESELS, STEAM ENGINES and Accessories

P172 • DUAL - FUEL IMPROVEMENTS—Dual-plunger fuel pump and automatic thermal air control, now standard equipment on Worthington dual-fuel diesels, provide greater efficiency and smoother operation over a wide load range, it is claimed.

The dual-plunger fuel pump has a small-diameter pilot plunger mounted in tandem with the main plunger for full-load operation on oil fuel. The separate small plunger supplies the pilot oil for burning gas fuel. This design gives improved atomization of pilot fuel, with short, localized penetration into the combustion chamber. The result, it is claimed, is lower firing pressure, with reduced exhaust temperature and improved fuel consumption.

Worthington Pump and Machinery Corp, Harrison, N. J.

P1060 • DIESEL POWER UNIT—Two models of the *DIX4* series of 4-cylinder engines—*DIX4B* and *DIX4D*—are now available as closed power units suitable for application in the petroleum, mining, construction and other fields. Model *DIX4B* is 3¼x4 in. with a displacement of 133 cu in., while Model *DIX4D* is 3⅝x4 in. and 166 cu in.

Hercules Motors Corp, Canton, Ohio.

P1034 • HORIZONTAL TURBINE—Rugged, simple and practically foolproof turbine develops 500 bhp at 1750 rpm. It takes steam at 850 to 900 psi, and 850 F, and exhausts into a vacuum of 12 in. Hg, or against 2-psig backpressure.

Whiton Machine Co, New London, Conn.

STANDBY LIGHTING PLANT P458

Electrical plant is powered with 2-cylinder air-cooled engine. Unit is equipped with a magneto, permitting hand cranking; there is no need for batteries.

Generator has a rated capacity of 5 kw. It starts single-phase motors up to 3 hp.

Kato Engineering Co, Mankato, Minn.

P1248 • TWO-CYCLE ENGINES—*Lorain* Model *A* and *R* engines, available for short-time delivery, are identical except for cylinder bore and brake-hp output. Model *R* is 12x13 in. and produces 45 bhp at 325 rpm; Model *A* is 13x13 in. and is good for 55 bhp at 325 rpm. Model *R* operates on natural gas only; Model *A* can be run as a cold-starting full diesel or field-converted to burn natural gas or butane.

White-Roth Machine Corp, Lorain, Ohio

P1217 • PRESSURE SNUBBER — Made with a cartridge of compressed powdered stainless steel and a steel body, device reduces or eliminates pulsations of gage pointer. It is available for service pressures up to 10,000 psi.

Helicoid Gage Div, American Chain & Cable Co, Bridgeport 2, Conn.

P1037 • DIESEL ENGINE — Four-cylinder diesel with maximum rated horsepower of 110 at 1800 rpm, designated *HR-400*, is light and compact. Mounting dimensions for basic industrial model are 43 7/32x29⅜x47⅜ in.

Cummins Engine Co, Columbus, Ind.

P1026 • SPEED LIMITER — Simple, accurate and reliable speed-limiting device for service with motors, generators and mg sets is adaptable to an extended speed range, from 100 to 2000 rpm.

Speed limiters are built with weight and tension-spring combinations to suit particular speed ranges within the over-all range. Improved design results in an accuracy of about ±2% for higher speeds and ±5% for lower speeds.

Allis-Chalmers Mfg Co, Milwaukee.

DIESEL WATER P622

Low-cost, rapid-and-accurate, on-the-spot testing of diesel cooling water can be performed with *Chromokit*. In a sturdy metal case there are four sample bottles, a packet of test cards to conduct 80 tests, color standard guide and treatment-adjustment chart.

Sample of cooling water containing treatment is taken in the dropper bottle. One drop is placed on a test card. After two minutes the color reaction is matched against the standard color guide to indicate chromate strength. Five variations in the standard guide indicates the swing from

satisfactory concentration to inadequate. If inadequate, the spot is checked against the Treatment Adjustment Chart to find out amount of additional treatment needed.

Dearborn Chemical Co, 310 S. Michigan Ave, Chicago 4, Ill.

INDUSTRIAL TURBINE P341

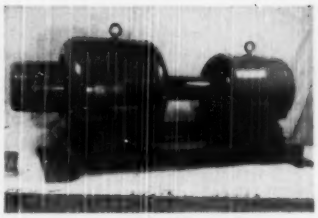
Type E industrial steam turbine with close-coupled integral reduction gears for low-speed drive of pumps, fans and compressors, drives the load and allows the unit to run at its most efficient speeds. These new units combine a compact speed reducer solidly coupled to the turbine. Three machined feet give 3-point support. Single helical gears with low helix angle give low thrust against bearings.

Endwise movement of one shaft does not affect axial position of the other. Thrust is not transferred from gears to turbine. Turbine and gear are aligned on a single heavy plate-steel base that also serves as an oil tank. The *Gearturbine* is shipped as a completely assembled unit ready to install. These units are available with standard gear-reduction ratios.

Westinghouse Electric Corp, Box 2099, Pittsburgh 30, Pa.

P1073 • DIESEL ENGINE — Supercharged *NHRS*-600 diesel, available in industrial, marine and automotive models, develops 300 hp at 2100 rpm. It incorporates a new fuel pump based on Cummins' principles of metering and injection but 56% smaller and 65% lighter, a fully counterbalanced crankshaft, improved piston design, tubular oil cooler.

Cummins Engine Co, Columbus, Ind.



P1164 • MG SET—*Katolight* sets are available for changing dc to ac, ac to dc or from one frequency to another. Variable-pitch pulleys are available to permit adjusting speed with motor and generator running.

Kato Engrg Co, Mankato, Minn.

P1168 • DIESEL ENGINE—Redesign of Hamilton Series 21-*SA* engine, a 2-cycle 21½x27½-in. unit, yields 38% more hp per cylinder for stationary service. It is now rated at 520 hp per cylinder for 60-cycle 277-rpm generating sets. This is net full-load rating, after allowing for blower power. Redesigned engine can be arranged for dual-fuel operation.

Lima-Hamilton Corp, Hamilton, Ohio.

P1012 • GOVERNOR — Micro-switch centrifugal governor turns off motor, engine or other electrically energized equipment when a predetermined speed limit has been exceeded. Unit is designed for service where investigation or corrective measures must be taken before "runaway" equipment is put back in operation.

Pierce Governor Co, 962 Sixth St, Anderson, Ind.

P1109 • PISTON RING — A 3-piece piston ring is designed for steam-operated air pumps, liquid pumps, steam and air cylinders of stationary air compressors, and in air cylinders of electrically driven air compressors. Three-piece design eliminates blowby in both directions of the stroke and acts as two rings when installed.

Hunt-Spiller Mfg Corp, 383 Dorchester Ave, South Boston 27, Mass.

DIESEL GENERATOR P589

Five new models of diesel-driven electric-generating plants, equipped with automatic-voltage regulators and ranging from 12½ to 55 kw. Powered by International Harvester low-speed engines, these new units combine all-weather gasoline-engine starting with full diesel operation.

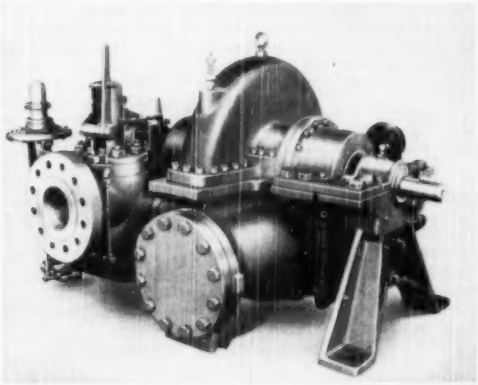
Engine is cranked by 12-v starting system. Less than a minute of warm-up is required before changing over to full diesel operation -- by control lever. Battery-recharging generator is provided to maintain starting batteries at full charge. Available in all standard voltages, frequencies and phases.

D W Onan & Sons, Inc, Minneapolis, Minn.

POWER UNITS P202

Three 4-cylinder gasoline-engine power units complete an extensive line ranging from 39 to 935 cu in. displacement. Companion diesel-engine power units range from 127.5 to 935 cu in. *Model JX4E* is 3½x4¼ in. for a displacement of 164 cu in.; *Model JX4C* is 3¾x4¼ in. and 188 cu in.; *Model JX4D* is 4x4¼ in. and 214 cu in.

Hercules Motors Corp, Canton, Ohio



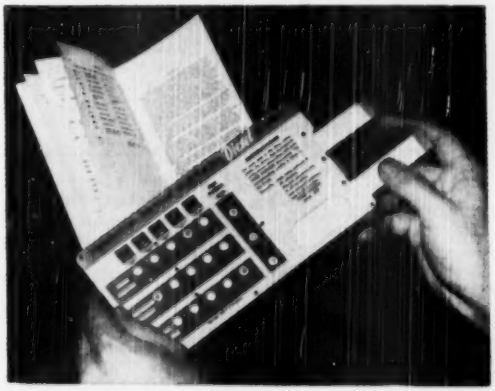
SINGLE-STAGE, HIGH-PRESSURE TURBINE P556

Mechanical-drive turbine that handles pressures to 1450 psi, initial temperatures to 950 F and backpressures to 300 psi. Unit has labyrinth shaft seals; a series of shaft grooves and mating tongues of stainless-steel packing.

Turbine is supported on true center line while front end is mounted on a flexible channel. These features take care of extreme thermal expansion met in high-temperature service. Mounting method permits both radial and axial expansion without disturbing shaft center line.

Unit is made in three sizes for capacities up to 200 hp.

De Laval Steam Turbine Co, Trenton 2, N.J.



DIESEL TROUBLE-SPOTTER P557

Firing pressure, compression pressure and exhaust temperature form the basis for operation of the *Schweitzer Trouble-Spotter*. After noting whether these factors are normal, high or low in each cylinder, three sliding inner strips in the *Trouble-Spotter* can be juggled to correspond. Moving the strips to match operating conditions causes a code number to appear on the *Spotter*.

This code number is then looked up in the *Guide* giving probable trouble causes. *Trouble-Spotter* and *Guide* go hand in hand and sell for $3.

Edward M Power Co Inc, 602 Granite Bldg, Pittsburgh 22, Pa.

Boiler Feed
Chemical Feed
Oil Burner
PUMPS
Centrifugal
Rotary
Reciprocating

BOILER FEED PUMPS P318

Combination of primary and secondary pump built into a single unit reduces installation space 30 to 50%, cuts first cost, eliminates one drive, one set of bearings and stuffing boxes. Part of feedwater heating occurs between the primary and secondary sections. This permits use of low-pressure heaters instead of high-pressure, commonly installed on conventional high-pressure pumps. Combination is for high-pressure boilers. One unit, driven by a 2025-hp 5000-rpm steam turbine, discharges 1980 gpm at 1570 psi. In the primary section, water is pumped at 255 F, and in secondary section at 465 F.

Byron Jackson Co, PO Box 2017 Terminal Annex, Los Angeles 54, Calif.

OIL BURNER PUMP P144

Positive-displacement variable-volume pump is submerged in the oil reservoir of industrial oil burners to meter fuel.

The pump makes it possible to burn without manual adjustment any weight of industrial oil from No. 1 to No. 6 or Canadian bunker Q oil. Rate of oil feed is governed by the length of piston stroke, controlled by a cam mechanism.

Iron Fireman Mfg Co, 1305 S W 12th Ave, Portland 1, Ore.

CHLORINE FEEDER P349

Chlorinizer meters chlorine gas to produce closely controlled concentrations of chlorine-water solution for process use, and slime and mussel control.

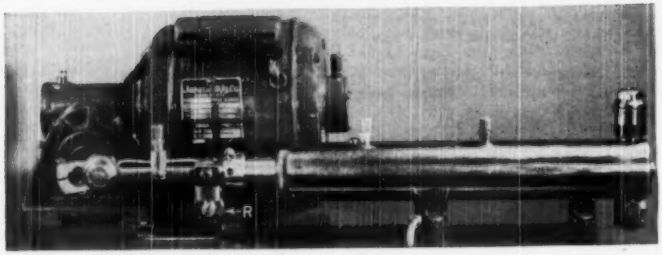
Feeder is readily adapted to semi-automatic, program or automatic proportional operation. Conversion from one method to any other may be made in the field. A positive chlorine rate indicator with direct-reading linear scale assures easy and accurate readings.

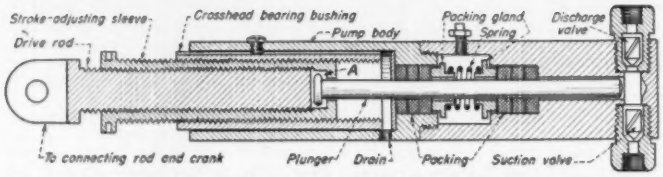
Builders-Providence, Inc, Div of Builders Iron Foundry, Providence 1, R. I.

PUMP PLUNGER GUIDE P143

For use on single, double and triple-plunger sludge pumps this crosshead guide rod is rigidly secured to each plunger. The rod travels through bronze guide bearings in a vertical plane with the plunger.

Ralph B Carter Co, Hackensack, N. J.





Chemical proportioning pump has a stroke with infinite adjustments from 0 to 2 in. Drawing shows screw-operated stroke sleeve for plunger changes so . . .

PUMP HAS INFINITE STROKE ADJUSTMENTS

P101 • Motor-driven, variable-stroke, positive-displacement, Nelson chemical proportioning pump has free-floating plunger. Plunger diameters range from ¼ to 1 in., with stroke adjustable from 0 to 2 in. Pump operates at speeds up to 60 rpm and pressures to 4000 psi.

Pump has a cylindrical crosshead connected by a constant-throw crank to the power unit. Stroke adjustment is made by a sleeve threaded into the crosshead and onto drive rod, as in drawing above. Screwing sleeve into or out of crosshead shortens or lengthens the plunger's stroke by increasing or decreasing the lost motion at *A* between the drive rod and sleeve head.

Thrust from the connecting rod to the crosshead is taken by a ball-bearing roller *R*, riding on a track in the photo shown at top of the page. Crank turns clockwise so that connecting-rod power thrust is downward on this bearing during each discharge stroke. This leaves the crosshead free, eliminating crosshead wear, and stroke adjustment may be made while pump operates.

A pump without motor drive may be installed as a linkage-drive unit. Such an installation may be made by directly connecting the pump's drive rod to the crosshead arms of a reciprocating pump or to any machine having a reciprocating or oscillating movement.

Nelson Pumps, Wright Chemical Corp, 627 West Lake St, Chicago 6, Ill.

PROPORTIONING PUMPS P149

Chemical proportioning pumps have ceramic wet-end parts, with reagent head, valves and valve housing armour-encased in porcelain. Valve seats gaskets and diaphragms are of inert fluorinated hydrocarbon plastic.

Lapp Insulator Co, Process Equipment Division, LeRoy, N. Y.

VERTICAL TURBINE PUMP P640

A small, vertical turbine pump, with glass-lined bowls and bronze impellers, can be used in deepwells as small as 4 in. in diameter. Equipped with vertical hollow-shaft electric motor, this unit delivers 15 to 140 gpm. Design features include: adjustment on the drive head to change capacity or pressure in one simple operation; closely spaced synthetic rubber bearings and ¾-in. stainless-steel shaft.

A O Smith Corp, 3533 N. 27 St, Milwaukee 1, Wis.

P1116 • DIAPHRAGM PUMPS—Motor- and engine-driven diaphragm and walking-beam plunger pumps and eccentric-driven plunger pumps handle liquids that are too heavy for self-priming centrifugal pumps, such as viscous and clotted compounds, thick residues and trash-laden liquids.

Marlow Pumps, Ridgewood, N.J.

CENTRIFUGAL PUMP P203

Two-stage volute design has watercooled duplex angular-contact ball thrust bearing, labyrinth impeller seals, heavy horizontally-split casing with flanged bearing supports, inter-stage seal against bypassing, only suction pressure on both stuffing boxes, renewable shaft sleeves, back-to-back impeller to give hydraulic balance. Capacities range up to 825 gpm and heads to 800 ft.

Warren Steam Pump Co., Warren, Mass.

P1113 • VACUUM PUMP — Enclosed vacuum pump is self-contained, including pump, motor and cooling fan. Pump and motor have ball bearings. Motor has thermal overload protection for continuous operation without overheating. Pump is available with or without vacuum tank with filter.

Perfection Mfg Corp, Minneapolis 13, Minn.

P1029 • TURBINE PUMP—Improved turbine pump has impeller fastened firmly to an enlarged shaft by a locknut and woodruff key, eliminating metal-to-metal contact. It features sealed-in-grease ball bearings.

Other features include: development of high pressures in single-stage construction; heads and impellers that are renewable when capacity of pump is to be changed.

Roy E Roth Co, Rock Island, Ill.

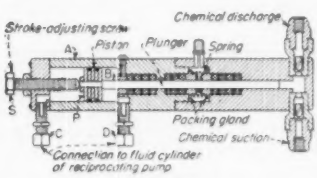
BOILER-FEED PUMP P444

Unit of regenerative turbine type has mechanical pressure seals and permanently lubricated ball bearings. Seals are developed to operate under conditions of high pressure and temperature, found in small-boiler feed service Equipped with synthetic-rubber sleeves seal, unit seals against leakage in pump box and along shaft.

Fred H Schaub Engrg Co, 2110 S Marshall Blvd, Chicago 23, Ill.

P1251 • DIRECT-FLOW PUMP — Five-inch stroke direct-flow pump series includes a 3-cylinder, 5-cylinder, 7-cylinder and 9-cylinder design. Horsepower ratings range from 100 for the 3-cylinder to 275 for the 9-cylinder. All wearing parts are interchangeable except the main bearing.

Aldrich Pump Co, Allentown, Pa.



CHEMICAL FEED PUMPS P208

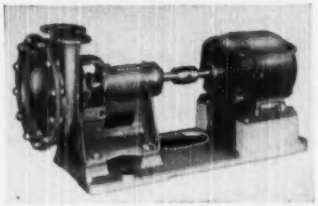
Designed to be driven from the fluid end of a reciprocating pump this *Nelson* chemical-feed unit makes stroke for stroke with the main pump. So it delivers chemicals into the discharge line proportional to the reciprocating pump's speed.

Nelson Pumps, Wright Chemical Corp, 627 West Lake St, Chicago 6, Ill.

TRASH PUMP P206

Pumping unit handles trash and has impeller without vanes or blades on which trash or other fibrous material can catch. Impeller is like a corkscrew. The curved channel starts with a small radius at the axis of rotation and fans out in a helical path. Thus, centrifugal action throws the fluid against the side of the discharge channel.

Fairbanks Morse Co, 600 S Michigan Ave, Chicago 5, Ill.



CENTRIFUGAL PUMPS P148

Stainless-steel centrifugal pumps for process industries to handle acid and alkaline liquids for which standard iron and bronze pumps are not suited, because of corrosive and abrasive qualities of the fluids pumped.

Both suction and discharge connections are in the casing. Removal of casing cover permits inspection of pump's interior without disturbing pipe connections. Similarly, impeller may be removed or replaced without disturbing the pipe. Pumps built in eight sizes, 1-in. discharge by 1½-in. suction to 3-in. discharge by 4-in. suction. Capacities range up to 750 gpm, and heads up to 180 ft.

Goulds Pumps, Inc, Seneca Falls, N. Y.

BOILER-FEED PUMP P644

A new single-suction, double-case, barrel-type boiler-feed pump is designed for 1200 to 2500psi pressure range. Design is based on tests of various types of volutes, return passages and impeller types and arrangements. This unit has back-to-back impellers and radially balanced double volutes in a split inner casing.

Allis-Chalmers Mfg Co, 864 South 70 St, Milwaukee, Wis.

P931 • CRADLE-MOUNTED PUMP —V-belt, turbine- or motor-driven centrifugal pump is built in 1, 1½, 2 and 3 in. sizes for capacities of 5 to 450 gpm and 15- to 250-ft heads. Materials are standard; all iron, all bronze, or special metals to meet unusual requirements.

Warren Steam Pump Co, Warren, Mass.

CHEMICAL-FEEDER P227

Auto-Pneu-Matic unit provides automatic instrument control for the *Pulsafeeder* output.

Pulsafeeder is designed so output can be adjusted during operation and, with the *Auto-Pneu-Matic* controller, volume can be changed from zero to full displacement automatically. Device is also suitable for use with all commercial pneumatic systems, and can be made responsive to any measurable variable such as flow, pH, temperature, liquid level, pressure, etc.

Lapp Insulator Co, Inc, Process Equipment Div, LeRoy, N. Y.

SELF-PROPELLED PUMP P553

Classified as simplex, single-action reciprocating Nelson chemical-proportioning pumps, their power end has a reversing mechanism or valve gear. This gear consists of a small reversing valve attached to the pump's piston rod. Valve operates an auxiliary liquid or air piston, which drives the pump from a power supply through the main reversing valve.

With a 25-psi power-supply operating pressure, chemicals will discharge at about 100 psi, and at 100-psi operating pressure, chemicals discharge at about 900 psi.

Nelson Pumps, Wright Chemical Corp, 627 W. Lake St, Chicago 6, Ill.

CENTRIFUGAL PUMPS P320

Primarily intended to operate with flooded suctions they are built in long-coupled constructions in 1- to 4-in. sizes and 10- to 1000-gpm capacities. Unit may be installed to operate in either vertical or horizontal position. Impeller shaft is supported in oversized ball bearings. Shaft is sealed into pump by packing, but mechanical self-lubricated seals are available.

Marlow Pumps, Ridgewood, N. J.

PUMP BYPASS P321

When equipped with this balanced bypass, booster pumps on city-water supply deliver a constant volume at constant pressure regardless of variations in city water lines.

Eco Engineering Co, 12 New York Ave, Newark, N. J.

VACUUM PUMP P245

Combination condensate-return and vacuum pump, *Model VE*, has one centrifugal pump for both functions with no close-fitting revolving parts.

Vacuum is produced by use of a water-jet venturi system. All parts are easily accessible in the cast-iron unit. Bronze fittings apply throughout. It is sealed against air in-leakage with mechanical seals. Available in single and duplex models from 5000 to 25,000 edr.

American Hydrovac, Dept PH, 290 Scholes St, Brooklyn 6, N. Y.

P1112 • CYCLING JET PUMP—Two-part cycle, which automatically continues until pump is turned off, permits this cycling jet pump to lift by suction and discharge against heads about equal to the gas, air or steam pressure used.

Penberthy Injector Co, 1242 Holden Ave, Detroit 2, Mich.

CHEMICAL FEEDER P369

Feeder-Rator, made of transparent acrylic plastic, simultaneously controls, meters, and dispenses relatively small amounts of inhibitors and other chemicals into a larger stream.

Fischer & Porter Co, Hatboro, Pa.

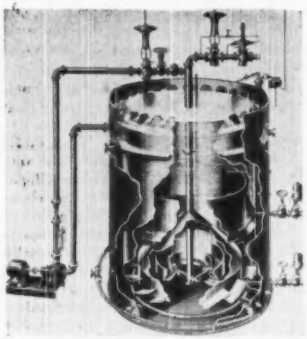
P1027 • NONCORROSIVE PUMP — In *flex-i-liner*, the transferred liquid or gas never touches any of the metal parts. This design makes pump particularly suitable for handling corrosive liquids such as acids, alkalies, industrial alcohols and many corrosive gases.

Vanton Pump Corp, Empire State Bldg, New York, N.Y.

WATER TREATMENT

Services, Chemicals and equipment

OIL-REMOVAL PROCESS P171
Cylinder oil is removed from condensate by constant admixture of an oil-absorbent slurry and filtering-through paper. A proportioning pump feeds the slurry at the needed rate. Operation of the process is almost automatic, taking not more than an hour or two of a man's time every 36 hr. In addition to high efficiency of oil removal, maker claims that solid products of filtration are easily disposable and do not constitute a stream-pollution factor.
Sparkler Manufacturing Co, Mundelein, Ill.

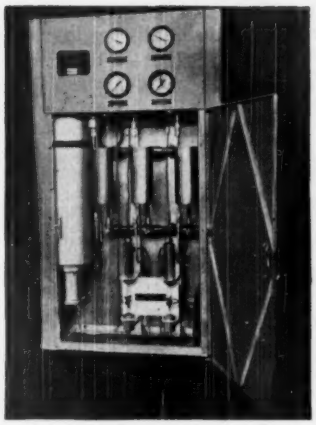


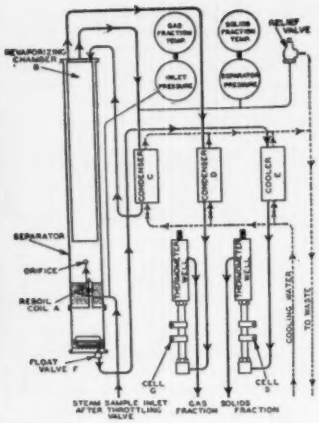
WATER SOFTENER P236
Cold-process slurry-type precipitating softener and coagulator employs hydraulic energy for mixing the applied chemicals with previously formed precipitate.

Flocculation occurs without the need of submerged mechanical moving parts. Complementary recirculation of treated water maintains a uniform depth of slurry bed independent of load. Density of slurry is automatically maintained.
Worthington Pump & Mach Corp, Water Treating Section, Dunellen, N. J.

P1064 • ANION RESIN — *Amberlite* IRA-400 is a strongly basic anion resin that can be used to convert salts to corresponding free bases of metallic ions. It will absorb negatively charged ions from acid, neutral and even mildly alkaline solutions in a pH range from 1 to 10 and can be used for direct removal of silica from boiler feedwater.

The resin behaves as solid caustic with only its hydroxyl ions in solution. Manufacturer says the resin can be mixed intimately with a strong cation exchanger to prepare an adsorbent that will completely deionize solutions in one column and in one step.
Resinous Products Div, Rohm & Haas Co, Philadelphia, Pa.





Simple reboil coil and revaporizing chamber take advantage of the thermodynamic properties of steam to separate gases from the dissolved sample for purity tests

GAS-FREE CONDENSATE FOR PURITY TEST

P1201 • Hagan automatic degasser produces continuously and automatically an approximately 50-50 split of a flowing steam sample. One fraction of the condensed steam contains any dissolved solids that may be present, and the other, dissolved gases. Gas is separated from conductivity sample.

In extensive field tests, involving use in a number of plants selected to provide a wide variety of conditions, the new degasser has given trouble-free automatic operation, it is reported. In all cases, carbon dioxide (CO_2) has been completely eliminated from the fraction containing dissolved solids, and ammonia (NH_3) has been eliminated, or reduced so greatly it is not a factor in conductivity measurements.

A principal advantage is the new degasser's automatic operation, it is pointed out. It does not require valve-twisting or frequent attention. Installation is easy and simple because the unit is compact and requires little in the way of connections. Its steam demand is modest—about 30 lb per hour.

Performance is virtually independent of inlet steam pressure and operating pressure in the separator. Changes in rate of sample flow also have little effect. Effect of fluctuations in temperature and pressure of cooling water is insignificant.
Hagan Corp, Hagan Building, Pittsburgh 30, Pa.

ION EXCHANGER P573
Deeminizer mixed-ion exchanger weighs only 5½ lb and requires only 1/3 sq ft of bench space. Capacity is 5 gph of water equal in ionic quality to triple distilled water. Can deliver water that has an electrical resistance of 10 million ohms or that contains only one part of ionic solids per 100 million parts of water.
Crystal Research Laboratories, Inc, Hartford, Conn.

WATER TREATMENT P134
Phosphate Poly Preparations meet specific requirements for small and medium-sized steam plants.

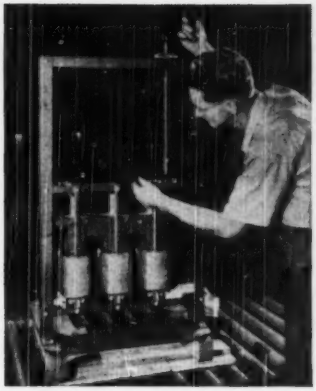
Preparations include (1) alkali-controlling agent (2) softening chemical (3) organic colloidal materials (4) corrosion inhibitors (5) antifoam agent.
The Brooks Boiler Treatment Co, 3304 E 87th St, Cleveland 4, Ohio

TO LEARN MORE ABOUT ANY NEW product, send in cards, page 181

WATER TREATMENT P636
A powdered treatment, Formula 353, is said to be rapidly and completely soluble, with superior sludge conditioning and corrosion protection qualities for diesel or steam-generator service.

Formula 353 is a potassium-type treatment developed from laboratory research with a Vapor-Clarkson steam generator. It can be applied directly to water-storage tanks, automatically by chemical feeders or, with diesel locomotives, by using solution tanks and proportioning pumps.
Dearborn Chemical Co, 310 S. Michigan Ave, Chicago 4, Ill.

WELDING EQUIPMENT and Supplies



DC WELDER USES PLATE-TYPE RECTIFIER

P1101 • Here's a 200-, 300-, 400-amp welding machine that combines characteristics of dc with advantages of ac welding. The thing that makes it possible is combining high-voltage selenium rectifiers and 3-phase adjustable core reactor.

Selenium rectifiers have undergone a continuous development to the point where they are much smaller, lighter and more efficient than other plate-type rectifiers of comparable ratings. Along with the rectifier development a practical, quiet, 3-phase, adjustable core-type reactor has experienced a parallel improvement. It can now be used in the secondary of a 3-phase welding transformer.

The 3-phase adjustable reactor with control handle and sprocket drive mounts in an upright frame that stands on a base assembly, *above left*. Next, the 3-phase transformer goes into a similar upright frame and is added to the base. An air filter operates between them.

A substantial steel case slips over top of welder assembly and bolts to upright frames and base. Top cover and fan-shroud bolt to case completing the assembly, *above, right*, and protecting welder for both indoor and outdoor service.

Because transformer and reactor are at bottom of the unit a low center of gravity is achieved. This makes the unit as readily transportable as conventional horizontal-type motor generator welder. Since there are no rotating parts except the fan, welder is practically noiseless.

At rated load unit has an efficiency of 66% against 54 for average motor-generator welder. At reduced loads efficiency increases to 73% at 20% rated load.

Westinghouse Electric Corp, P O Box 868, Pittsburgh 30, Pa.

ELECTRODE SLIDE RULE P561

Pocket-sized, comparator slide rule (Publication *GEN-37*) lists company electrodes, welding rods, with type of service for each. All principal manufacturers' electrodes, which are closest equivalents for the application, are also listed and keyed to AWS classification numbers.

G.E. Co, Schenectady 5, N. Y.

BRAZING ALLOY P405

Silver brazing-alloy package contains 5 oz of 1/16-in. dia *Easy-Flo-45* wire. Torch-brazing instructions and a *Quick Facts* folder are included.

Handy & Harman, 82 Fulton St, New York 7, N. Y.

OXYACETYLENE OUTFIT P366

Packaged oxyacetylene welding and cutting outfit, *Flamecraft*, has oxygen and acetylene cylinders, welding torch, cutting cylinder truck, fluxes, assortment of welding and hard facing rods, and instruction folder.

Air Reduction Sales Co, 60 East 42nd St, New York 17, N. Y.

P1049 • ARC WELDER—*Fleetwelder* 200 is suited for ac job-shop and industrial welding. It uses electrodes ranging in size from 5/64 to ¼ in.

Low-current welding of thin sheets is simplified and high-current welding of heavy plate is made faster through the *Arc Booster*, which adjusts the welder to start the arc automatically the instant electrode touches the work. Current automatically returns to correct amount set for the job after a few seconds. The heavy copper windings are insulated with spun glass and mica separators and placed in a welded steel-laminated frame.

Lincoln Electric Co, Cleveland 1, Ohio.

P201 • COLD WELD PROCESS — Recently developed by the General Electric Co Ltd, of England, welds nonferrous metals without heat, adhesives or chemicals, merely by squeezing them together with properly shaped dies. Metals so far successfully cold-welded include aluminum, duralumin, cadmium, lead, copper, nickel, zinc and silver.

Procedure is extremely simple. With aluminum, for example, the contact surfaces are wire brushed for a few seconds. Parts are then lapped and squeezed between dies designed to produce properly shaped indentations on both sides. The welding is then complete.

Coldweld Corp, 10 E 40th St, New York 16, N. Y.

P1131 • WELDING ROD—Deoxidized copper sheets and plates can be welded with Anaconda Copper 372 rod using the inert-gas-shielded arc method.

Consistently satisfactory welds in fabricating pressure vessels of deoxidized copper result with the 372 rod of 98% copper content. Weld metal is sound, ductile, with full strength of annealed base metal that requires no peening or working the welds to develop maximum strength.

American Brass Co, 25 Broadway, New York 4, N.Y.

DC ARC WELDER P423

Line of engine-driven, dc arc welders, the WD-40 series, consists of five lightweight mobile units.

One, the WD-42 AGW, is driven by a 31-hp *Wisconsin* VP-4 air-cooled engine with magnetic ignition. Welder weighs 1050 lb; has rated output of 200 amp at 40 v. Unit is also available with 4-cylinder, liquid-cooled *Hercules* engine drive.

General Electric Co, Schenectady, N. Y.

HIGH-SPEED ELECTRODE P376

New-principle high-speed electrode *Steel-Tectic* welds bead over bead without the need for removing slag.

Steel-Tectic 5/32 in. electrode can be used at as low as 50 amp on thin steel without burning through. *Frigidarc* flux coating makes this electrode performance possible. It forms a protective envelope around the weld area permitting a spray deposit free of weakening oxides and inclusions.

Eutectic Welding Alloys Corp., 40 Worth St, New York 13, N. Y.

P1172 • LOW-COST WELDERS — Current range is from 40 to 250 amp at an operating speed of 3450 rpm. It is 26¼ in. long, 18 in. wide, 25 in. high (station-

ary), and weighs 340 lb. Generator is a modified multirange type with four laminated main poles and four interpoles that are removable. Four heavy-duty generator brushes are held in a fixed neutral position by patented single-unit brush rigging.

Modified multirange dual control offers five ranges of welding current and 100 steps of va adjustment in each range, making available 500 combinations of open-circuit voltage and welding current for selecting any desired arc characteristics.

Hobart Brothers Co, Box 489, Troy, Ohio.

P1075 • SPOT WELDER — Portable, only 23 lb, self-operating spot welder for 110 or 220 v, 50-60 cycle service, welds up to ⅛ in. thickness of metal or up to 2 pieces of 18 gage galvanized.

Greyhound AC Arc Welder Corp, 606 Johnson Ave, Brooklyn 6, N.Y.

P1079 • ARC WELDER—Heavy-duty, 300- and 400-amp sizes, arc welder, the *Yellow Jacket 36-A*, has a 40 v dc, NEMA approved, variable voltage generator with simplified current output control.

Unit is a complete 2-bearing unit, engine-driven by sheaves and steel-cored V-belts. The 36-*A* is powered by a 6-cylinder engine, 76 in. long, 28 in. wide in stationary and portable models.

Air Reduction Co, 60 E 42nd St, New York 17, N. Y.

BRAZING ALLOY P605

Carbide facing for forged-steel pegs gives them a service life of 30,000 tons of coal in coal-pulverizer service. Use of Easy-Flo No. 3 silver brazing alloy along with a semi-automatic gas brazing setup permits application of the carbide facing.

Lucas-Milhaupt Engrg Co, 5057 So. Lake Drive, Cudahy, Wis.

P1059 • WELDING FITTINGS—*Flow-line* stainless-steel welding fittings come in five different ranges of wall thicknesses and sizes, and in three different stainless alloys. Wall thicknesses are made to conform to Schedules 5, 10, 40, and 80 specifications in pipe sizes of ½ to 12 in.

Welding Fittings Corp, New Castle, Pa.

BRAZING ROD P105

Flux-coated, nickel-silver brazing rod, *All-State No. 11*, can be used with oxy-acetylene blowpipes.

New rod has been tested on 14 different metals, and its selection applies wherever bronze is used. It brazes with higher strength—tensile about 85,000 psi, shear above 160,000 psi—and full machinability with less alloy. There is no fuming or glare when it is used.

All-State Welding Alloys Co, Inc, 273 Ferris Ave, White Plains, N. Y.

Flooring, calculating and communicating equipment, castings and other general equipment

DRAFTING BOARD P103

Light, strong drawing board results from air-cell or honeycomb design employing outer strips of plywood panels with honeycomb between.

Entire board has been dipped in a waterproofing agent to seal in honeycomb construction. A straight-edge gear-rack aligner makes T-squares unnecessary. Board comes in sizes from 12 by 17 to 31 by 42 in.

Cal-Pan Corp, 1111 S Fremont Ave, Alhambra, Calif.

P1133 • GAS SCRUBBER—Centrifugal precipitation of solids and liquids with Aerotec gas scrubbers gives a dry-gas method of removing entrained particles in a moving gas stream.

Gas scrubbers are available in a variety of sizes up to 100,000,000 SCFD. Vertical designs serve where either liquids or solids are removed from gas; horizontal units for liquids such as water or distillates. On a typical pipeline dust average efficiencies of 99.6% are claimed.

Thermix Corp, First National Bank Bldg, Greenwich, Conn.

COVER PLATE P521

Clear, methyl-methacrylate plastic coverplate can protect costly welding from welding spatter and other damage. Covers are 0.060 in. thick, and come in two sizes, 2x4½ in. and 2x4⅛ in.

American Optical Co, Southbridge, Mass.

P898 • ANNUNCIATOR—A new supervisory annunciator gives both visual and audible alarm when trouble develops. It is suitable for spotting overheated bearings, low fuel level, low or high pressures and high cooling temperatures.

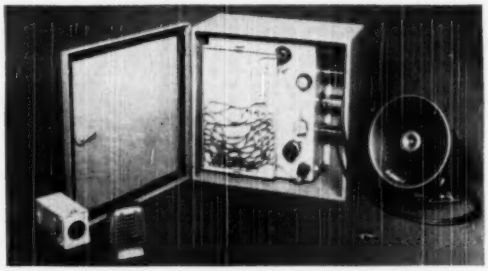
Auth Electric Co, 34-20 45th St, Long Island City, N. Y.

NONSKID FLOOR PLATES P304

Abrasive rolled-steel floor plates have abrasive grains in rolled steel. For use as industrial floors, loading platforms and ramps, walkways, building entrances, and for bench and hatch covers. Plates don't lose nonslip qualities because as surface wears new abrasive particles are exposed.

Abrasive grains—the same kind used in grinding wheels—are rolled as an integral part of the steel-floor plates, which can be sheared, drilled, countersunk, machined or flame cut. Plates are ⅛ to ¾ in. thick, 60 in. wide, maximum, by 144 in. long.

Alan Wood Steel Co, Dept W-100, Conshohocken, Pa.



RECORDING AND REPRODUCING THE VOICE OF SAFETY

P401 • *Saf-T-Vox* is a small, compact electronic unit for recording and reproducing safety messages. Developed at General Electric's Electronic Park, it is adapted to the field of industrial safety.

Device enables the plant safety man to deliver his verbal warning at the danger point *before* the danger moment. Unit records his message and reproduces it whenever and wherever he desires. It speaks for the safety man as if he were there.

It employs a simple mechanism for handling a magnetic tape on which messages are recorded, an amplifier, a loudspeaker and a starting trigger. No resetting or rewinding is necessary. *Saf-T-Vox* is always ready to speak when its starter is tripped, by interception of beam or otherwise.

Unit is flexible and economical in operation. Ten messages of ten seconds duration each can be repeated one at a time as the device is started.

American Allsafe Co, Inc, 1245 Niagara St, Buffalo 13, N.Y.

More items on page 182

To Get More Information . . . . .

The selected items described here were presented for your interest and information, and to help you solve plant problems. The manufacturers are eager and anxious that you get full and complete details about their equipment. To help you get these details, we've provided the card below.

USE THESE FREE CARDS

HERE'S ALL YOU DO!

Pick out the equipment you are interested in. Write the number of the item in the boxes to the right. Fill out your name, address, title, and company. Tear the cards off and drop them in the mail!

GOT A PROBLEM?

Perhaps you have a plant problem you'd like to ask the editors about, or maybe you want more data about products advertised in the directory (pages 39-142). If so, use the lines at the bottom of each card. We'll try to help.

To get further information about the equipment described, merely write the numbers of the items in the spaces below, fill out your name, address, company, and title, and drop the cards in the mail. No postage required! We'll do the rest.

Your Name_____ Title_____

Your address_____

Your company name_____

USE THE SPACE BELOW IF YOU HAVE A PLANT PROBLEM YOU'D LIKE TO ASK ABOUT

_____

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To get further information about the equipment described, merely write the numbers of the items in the spaces below, fill out your name, address, company, and title, and drop the cards in the mail. No postage required! We'll do the rest.

Your Name_____ Title_____

Your address_____

Your company name_____

USE THE SPACE BELOW IF YOU HAVE A PLANT PROBLEM YOU'D LIKE TO ASK ABOUT

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STANDARD CASTINGS **P128**

New method permits stocking and packaging standard shapes and forms of Meehanite castings — a metal produced to bridge the gap between cast iron and steel.

All shapes are 12 in. long and can be had in sizes from ¾ to 12 in. for squares and flats, ¼ to 18 in. for rounds and bushings, 1 to 18 in. for angles, channels and tees, with ⅛-in. allowance on all dimensions for finishing. Castings have a tensile strength between 30 and 50,000 psi, combined with no porosity and fast machinability.

Meters & Metals Inc, 220-4 West 42nd St, New York, N. Y.

SLIDE RULE **P124**

A new double or back-to-back scale on the *800 Log Log* slide rule simplifies the traditional scale arrangement. The new scale (1) places the six log-log-mated scales together to make three double scales with numbers and reciprocals back-to-back (2) provides the extra area for placing *C* scales on both sides (3) includes the *DI* scale, often left off.

Pickett & Eckel, Inc, 5 South Wabash Ave, Chicago, Ill.

INTAKE SCREEN **P137**

Thru-Clean screen removes trash and large solids from water intake.

Primary elements consist of a permanently supported rack of vertical steel bars and a power-operated cleaning mechanism employing two endless parallel strands of chain, which carry the cleaning rakes. Screenings are discharged on the upstream side to a belt conveyor or into a trough. Machine is protected against jamming by a conventional breaking pin or a *Link-Belt Electrofluid* drive. Ask for Folder No. 2327.

Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill.

DUST CLASSIFIER **P106**

A new laboratory apparatus, above, the *Centrifugal Dust Classifier*, grades dust particles from typical fine-dust samples, and gives a good division of these particles below 60 microns.

A rotary symmetrical slot sets as the entrance port for the entering dust-laden air stream. The slot shapes the stream to a spiral directed toward its center. The whole sifting chamber rotates so the material to be sized receives a gentle treatment. One part of the dust sticks to the outer wall of the classifier under the influence of centrifugal force. The lighter elements carry along with the air current toward the center. The fraction sifted collects on the stop flange of the rotor.

The apparatus is empirically calculated and grain size limits are easily altered. Result of the analysis is gained as a graph, with the whole operation taking only 2 hr.

Sandvick Saw & Tool Corp, 47 Warren St, New York 7, N. Y.

⑦

#	1	2	3	4	5	6	7	8	9
97	09	19	29	38	48	58	67	77	87
87	08	17	26	34	43	52	60	69	78
77	07	15	23	30	38	46	53	61	69
67	06	13	20	26	33	40	46	53	60
57	05	11	17	22	28	34	39	45	51
47	04	09	14	18	23	28	32	37	42
37	03	07	11	14	18	22	25	29	33
27	02	05	08	10	13	16	18	21	24
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—5	7	4	1	8	5	2	9	6	3

MULTIPLICATION CHART **P131**

Clearly printed chart, cased in moisture-proof nonglare plastic, cuts multiplication time more than 50% and yields exact numerical answers.

Block 7, here reproduced from chart, shows how to multiply two 2-digit numbers, the first of which ends in 7. Circled numbers show reading to multiply 87x93. Write down 783 and below it, shifted one place to the right, 261. Add to get the product 8091 as below.

This chart, less than a foot square, is the invention of John L Garwood, a former government disbursing officer. The time saving is said to be even greater in multiplying numbers of three or more digits.

Disbursing Agents Computing Co, Inc, Suite 901, 25 Broadway, New York, N. Y.

PLASTIC NAMEPLATES **P147**

For identification of valves, switches, instrument panels, and gages, laminated plastic nameplates are made in 1/16, ⅛ or ¼ in. thickness with the characters engraved in them. Surface layer of these plates is black, white or red, and the core is a contrasting color.

Industrial Nameplate Service, PO Box 5005, Houston 12, Texas

PANEL METER **P165**

This one basic meter can be used for several ranges by adding external accessories, and by merely changing the face plate. The de self-contained instrument ranges from 50 to 500 microamperes; from 1 to 500 milliamperes, and from 1 to 15 amp.

International Instrument, Inc, 381 East St, New Haven 11, Conn.

FIRST CLASS
PERMIT No. 64
(Sec.34.9,P.L.&R.)
NEW YORK,N.Y.

BUSINESS REPLY CARD
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New York 18, N. Y.

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NEW YORK,N.Y.

BUSINESS REPLY CARD
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330 West 42nd Street

New York 18, N. Y.

REVIEW OF IMPORTANT NEW BULLETINS FOR 1950

These were selected from bulletins described in POWER during the first half of 1950, and including some from the latter part of 1949. Use the index below to locate the products you are interested in, then send in the postpaid cards on page 203 to order copies of the bulletins you want.

Air Conditioning, Heating and Ventilating	183	Materials Handling	191
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AIR CONDITIONING, HEATING REFRIGERATING AND VENTILATING EQUIPMENT

A1 INDUSTRIAL DRIERS—J O Ross Engrg Corp, 350 Madison Ave, New York 17, N. Y. 22-page booklet No. 131 gives informative data about principles and processes of industrial drying. Illustrations of Ross driers as used in various industries are included.

A2 FORGED STEEL PURGER — Armstrong Machine Works, Three Rivers, Mich. 8-page folder No. 192 tells how the Armstrong forged-steel purger keeps refrigeration systems free of noncondensable gases. Installation data, specifications and prices, helpful charts and tables, and a brief description of other Armstrong refrigeration products are also given.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ **DRIERS**—Kemp Mfg Co, 405 E Oliver St, Baltimore 2, Md. 32-page catalog No. D-27 features a comprehensive discussion of desiccant-bed drying of air, gases and liquids. Also describes and illustrates special models such as bottled-gas drier, dri-breather, lab-master drier, and portable dehumidifier.

A3 COOLING EQUIPMENT—Marley Co, 3001 Fairfax Rd, Kansas City 15, Kans. 4-page folder No. DC-49 illustrates mechanical features and three basic designs of the new Marley DriCooler.

A4 COOLERS — Worthington Pump & Machy Corp, Harrison, N. J. Bulletin No. C-1100-S74 describes the UCY Series ammonia product coolers. Dimensions and specifications are given.

A5 UNIT HEATERS — Young Radiator Co, Racine, Wis. 16-page catalog No. 2648-A is a revised edition on Young's Vertiflow unit heaters. Contains tables and equations for applying these heaters to steam and hot water systems.

A6 COOLING TOWER—Marley Co, 3001 Fairfax Rd, Kansas City 15, Kansas. 4-page folder No. V-49 discusses the new Marley Verflow cooling tower. Illustrations and engineering data are included.

A7 AIR HANDLING EQUIPMENT—American Blower Corp, Detroit 32, Mich. 48-page booklet No. B-4729 shows a comprehensive and complete line of equipment manufactured by American Blower for practically every known air handling requirement.

A8 LOW-PRESSURE REFRIGERATING UNITS—Frick Co, Waynesboro, Pa. Bulletin No. 791-A contains specifications on Frick Eclipse low-pressure refrigerating units with compressors of 2, 3, 4 or 6 cylinders, 4⅝-in. bore by 4¼-in. stroke.

A9 PACKAGED AIR CONDITIONERS —Air Conditioning Dept, General Electric Co, Bloomfield, N. J. Series of catalogs, No. PM79-0101, PM79-0201, PM79-0301 and PM79-0401, present packaged air conditioners for a wide variety of applications. Specifications, ratings and dimensions are given for each unit.

A10 TUNNEL FREEZER—Frick Co, Waynesboro, Pa. 4-page folder features Frick tunnel freezer with both conveyor and push trucks for handling foods. Several types are illustrated.

A12 DIRECT-FIRED UNIT HEATER — Thermobloc Div, Pratt-Daniel Corp, East Port Chester, Conn. Data file No. 901 contains complete descriptions of Thermobloc self-contained direct-fired industrial heating units of 300,000- and 550,000-Btu-per-hr output capacity. Data tables for computing heat loss and figuring heat requirement are given.

A13 VANED DAMPER — Anemostat Corp of America, 10 E 39th St, New York, N. Y. 4-page folder No. 30 describes construction, installation and operation of Turnotrol, a turning vane and volume-control device for balancing heating, ventilating and air-conditioning systems.

A14 ALL-ELECTRIC UNIT HEATERS — Electromode Corp, 45 Crouch St, Rochester 3, N. Y. 8-page catalog No. EC-62 gives complete specifications, prices, illustrations of units, and shows typical installations of Electromode heaters.

A15 WARM-AIR HEATING — Pratt-Daniel Corp, East Port Chester, Conn. Bulletin No. 19 SA-401 tells about the new Thermobloc self-contained, direct-fired industrial-heating unit that can perform the function of tempering makeup air whether it is used as a plant heating system or as an auxiliary unit.

A16 AIR HEATERS — Dravo Corp, Dravo Bldg, Pittsburgh 22, Pa. Brochure No. 520 describes Dravo Counterflow warm-air space heaters, and their application in foundries and other types of industries. Typical examples are illustrated.

A17 MECHANICAL DRAFT FANS—Green Fuel Economizer Co, Beacon, N. Y. 20-page bulletin No. 168 contains descriptive data on the company's line of mechanical draft fans built in both single and double inlet designs, with or without inlet boxes as required. Illustrations and diagrams are included.

A18 FAN STANDARDS — National Assn of Fan Manufacturers Inc, 2159 Guardian Bldg, Detroit 26, Mich. 3-page form No. 109 sets forth recommended standard sizes for vaneaxial and tubeaxial fans.

A19 CONTROLLED HUMIDITY — Niagara Blower Co, 405 Lexington Ave, New York 17 N. Y. Single-sheet No. 112 describes Niagara's controlled-humidity method of air conditioning. Flow diagram is given.

A20 COOLING EQUIPMENT—Frick Co, Waynesboro, Pa. 8-page booklet illustrates and gives a check list of typical Frick equipment for refrigerating, ice making and air conditioning.

A21 EVAPORATIVE CONDENSERS —Frick Co, Waynesboro, Pa. 8-page bulletin No. 234-E outlines advantages and principles of operation of Frick evaporative condensers for ammonia and freon-12 refrigerating systems.

A22 LOW-TEMPERATURE INSULATION—Rubatex Div, Great American Industries Inc, Bedford, Va. 20-page design data book No. 37 discusses the use of Rubatex R-102-S insulation hardboard for low-temperature insulation purposes.

A23 ELECTRIC HEATERS — Thermel Inc, 3440 W Lake St, Chicago 24, Ill. 4-page folder No. D49 shows many interesting forms of electric heating units for industrial, commercial and domestic use.

A24 **ROOF COOLING** — Rupprecht's Rotary Roof Cooler, P O Box 6795, Los Angeles 22, Calif. 4-page reprint tells about roof cooling—what it can do and how it is done.

A25 **REFRIGERATING MACHINES** —Frick Co, Waynesboro, Pa. 4-page bulletin No. 196-G features several types of Frick refrigerating machines.

A26 **UNIT HEATER** — Bulletin features Wing turbine-driven unit heater. Included are complete details of design and construction, together with engineering data and dimensions, both on revolving-discharge and fixed units. Piping details are also clearly shown. L J Wing Mfg Co, Linden, N. J.

A27 **SPRAY NOZZLES**—Catalog No. 30 lists spray nozzles and accessories for industrial and air-conditioning applications. Dimension data are given with explanatory illustrations. Industrial Div, Delavan Mfg Co, 3009 Sixth Ave, Des Moines, Iowa.

A28 **COOLING TOWER** — 4-page folder, No. AQ-50, contains specifications, engineering data, and application of Marley Aquatowers, specifically designed to meet the demand for a compact, efficient, troublefree water-cooling tower. Marley Co, Inc, Fairfax & Marley Rds, Kansas City 15, Kans.

A29 **WATERCOOLERS** — 12-page booklet, No. 401, discusses direct-expansion watercoolers of U-tube construction designed to withstand stresses in materials due to temperature changes. Coolers shown use Freon-12 for the refrigerant. Doyle & Roth Mfg Co, 136-50 24th St, Brooklyn 32, N. Y.

BOILERS AND AUXILIARIES

B1 **SPREADER STOKER** — Detroit Stoker Co, General Motors Bldg, Detroit 2, Mich. 40-page catalog No. 890 covers installations of Detroit Roto-Stoker in power, process steam and heating plants, and includes applications to all kinds of boilers and steam generators.

B2 **BOILER SEAM PROTECTOR** — National Boiler Protector Co, 929 Rabolt Bldg, Dayton 2, Ohio. Folder, entitled "The National Boiler Seam Protector," describes this protector, which is installed to insulate riveted seams of hrt boilers.

B3 **SPREADER STOKER** — Detroit Stoker Co, General Motors Bldg, Detroit 2, Mich. 48-page bulletin No. 80 gives a complete description, including diagrams, of the Detroit RotorGrate stoker and its methods of operation.

B4 **UNDERFEED SINGLE RETORT STOKER** — Detroit Stoker Co, General Motors Bldg, Detroit 2, Mich. 24-page booklet No. 350 covers construction of the Detroit LoStoker. Also gives diagrams, sizes and capacities.

B5 **GAGE ILLUMINATORS**—Jerguson Gage & Valve Co, 30 Fellsway, Somerville 45, Mass. Bulletin No. 117 features the new Jerguson gage illuminators. Illustrations of single section and double section illuminators are included.

B6 **BURNER LINE** — Coen Co, 40 Boardman Pl, San Francisco 3, Calif. 12-page brochure No. 48 tells about Coen burners and burner equipment for oil and gas firing. Application data, diagrams and tables are given.

B7 **GAS COMBUSTION EQUIPMENT**—Bryant Industrial Div, Affiliated Gas Equipment, Inc, 1020 London Rd, Cleveland 10, Ohio. Condensed catalog No. 292 describes and pictures 33 items of gas combustion equipment.

B8 **OIL-BURNING SYSTEMS**—Simplex Oil Heating Corp, 11 Park Pl, New York, N. Y. 4-page leaflet No. 122-41 contains informative data on Types HEG and HEGH horizontal oil-burning systems.

B9 **SINGLE-RETORT PLUNGER-FEED STOKERS**—Detroit Stoker Co, General Motors Bldg, Detroit 2, Mich. 24-page booklet No. 600 covers construction, operation and application of Detroit UniStokers.

B10 **REFRACTORIES** — Quigley Co, 527 Fifth Ave, New York 17, N.Y. Three bulletins are offered. No. KY 27-30 describes Kyram 27 and 30, ramming mixtures. No. HC-103T explains uses of Hearth-Crete, a chrome magnesite castable refractory, and No. CX-201c discusses Chromix, a plastic monolithic refractory.

B11 **SPREADER STOKER**—American Engrg Co, Cumberland and Aramingo Ave, Philadelphia 25, Pa. 14-page catalog, entitled "AE Perfect Spread Stoker," discusses construction, operation and advantages of this type stoker. Also illustrates typical installations under a variety of boilers.

B12 **WORM-FEED STOKER**—Brownell Co, 306 N Findlay St, Dayton 1, Ohio. 8-page brochure No. S-41 contains complete description and data on Type F worm-feed stoker. Construction details are shown.

B13 **INDUSTRIAL OIL - BURNING SYSTEMS**—Simplex Oil Heating Corp, 11 Park Pl, New York 7, N. Y. 4-page booklet No. 123-41 cites advantages of Simplex oil-burning systems.

B14 **MULTIPLE DOUBLE - RETORT STOKER**—Detroit Stoker Co, General Motors Bldg, Detroit 2, Mich. Bulletin describes multiple-retort wide-cleaning stoker for large boilers.

B15 **FEEDWATER REGULATION SYSTEMS**—Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio. 20-page catalog No. S-27 describes new Impulse feedwater regulation systems and related equipment. Illustrations are included.

B16 **REFRACTORIES**—Walsh Refractories Corp, Dept M, 101 Ferry St, St. Louis 7, Mo. Bulletin features Mullitex, super-duty fire brick and Mullitex RB, special super-duty refractory. Properties, typical applications and many other refractory materials are listed in a convenient reference table.

B17 **SUSPENDED ARCHES**—Laclede-Christy Co, Ambassador Bldg, St. Louis 1, Mo. 28-page booklet presents informative data on Laclede suspended arches and sectionally supported walls including their application to all types of furnace enclosures.

B18 **ROTARY POSITIVE BLOWERS**—Roots-Connersville Blower Corp, 900 W Mount St, Connersville, Ind. 8-page folder No. 21-B-37 covers smaller size Type AF rotary positive blowers for pressure or suction service. A capacity and pressure range table of each blower size is given together with a dimension chart of all standard sizes.

To order catalogs, use cards on page 203

B19 **CENTRIFUGAL BLOWERS AND EXHAUSTERS** — Roots-Connersville Blower Corp, 900 W Mount St, Connersville, Ind. 24-page booklet No. 120-E-14 discusses operating characteristics of R-C units. Design and construction features of single-stage and multi-stage units are given, as well as cross-sections, diagrams, curves, exploded views, etc.

B20 **BOILER TUBES** — Babcock & Wilcox Tube Co, Beaver Falls, Pa. Price sheets for minimum-wall, seamless, carbon-steel merchant boiler tubes are available. The list covers cold-drawn tubes in sizes 1-in. and 1¼-in. outside diameter, and hot-finished tubes in sizes 1½-in. through 6-in. outside diameter, in various wall thicknesses, with cut lengths 4 to 24 ft inclusive.

B21 **PACKAGE STEAM GENERATORS** — Foster Wheeler Corp, 165 Broadway, New York 6, N. Y. 12-page booklet No. PG-49-13 features a series of Foster Wheeler coal-oil-gas package steam generators. Capacity and dimension tables for each design pressure, performance curves and cross-sectional views are given.

B22 **HEATING UNITS**—Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo. 8-page folder describes a new heating unit that can be used interchangeably as a steam boiler or hot water heater by adapting the control equipment accordingly. Designed primarily for smaller industrial requirements, charts give capacities and specifications for the unit both as a boiler and as a heater.

B23 **STEAM BOILER UNIT**—Johnston Brothers Inc, Ferrysburg, Mich. 4-page brochure No. 505 tells about Johnston steam boiler unit, a self-contained, compact, completely equipped steam generating plant. Specification and dimension table is included.

B24 **BOILER - STOKER COMBINATION**—Brownell Co, Dayton 1, Ohio. 8-page bulletin No. SF-1 describes Brownell Unitbilt Combination, a high-leg direct draft boiler with built-in wormfeed stoker. Parts are illustrated and explained, dimensions and details listed.

B25 **SCOTCH BOILERS** — Johnston Brothers Inc, Ferrysburg, Mich. 4-page leaflet No. 9000 features low pressure heating all-welded scotch boilers for oil, gas or stoker firing.

B26 **LABORATORY CRUSHERS** — American Pulverizer Co, 1349 Macklind Ave, St. Louis 10, Mo. 6-page broadside, entitled "For Better Testing and Small Scale Reduction," discusses practical applications of American laboratory crushers, grinders and shredders in testing laboratories and universities for reduction of coal, by-products, chemicals, clays and other products.

B27 **STEAM GENERATORS** — C H Dutton Co, Kalamazoo, Mich. 4-page folder features Dutton line of horizontal return and vertical boilers with choice of oil, gas, hand or stoker firing. Illustrations and descriptions of each are included.

B28 **WATER-TUBE BOILERS**—Henry Vogt Machine Co, 1000 W. Ormsby St, Louisville 10, Ky. 18-page catalog features the Vogt Class VL water-tube boilers. Contains diagrams and principal data of several units installed in power plants.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ **STEAM BOILERS** — Cleaver-Brooks Co, 326A E Keefe Ave, Milwaukee, Wis. 12-page publication points out advantages of self-contained, oil- and gas-fired steam boilers for processing and heating. Illustrated are various sizes ranging from 15 to 500 hp and 15 to 200 hp.

B29 **DUST COLLECTORS** — Pratt-Daniel Corp, East Port Chester, Conn. 16-page booklet No. 250S provides detailed information on the new Valmont Type S dust collector and the standard Type HC. A nomograph chart is included for determining number of tubes required for a given capacity, temperature and resistance.

B30 **PACKAGED STEAM BOILERS** —Edge Moor Iron Works, Inc, Edge Moor, Del. 8-page folder No. G-491 discusses Edge Moor power Gems steam generator, a fully packaged unit including all necessary equipment. Specifications are given for all models of standard boiler equipment and standard burner equipment for heavy oil.

B31 **SOOT-BLOWING SYSTEMS** — Vulcan Soot Blower Corp, Dubois,

Pa. 16-page bulletin No. 483 describes Vulcan automatic-sequential power-operated soot-blowing systems. Operating procedures are discussed in detail, and 10 typical installations are shown diagrammatically.

B32 **BOILER RETURN SYSTEMS** — Fred H Schaub Engrg Co, 2110 S Marshall Blvd, Chicago 23, Ill. 14-page catalog No. 55 describes Schaub standard boiler return systems. Complete selection tables and specifications are given. Also listed are applications and equipment furnished for Schaub Preeheat, heat reclaim, spray-type deaerating, and zero oxygen-deaerating systems.

B33 **CENTRIFUGAL BLOWER**—U. S. Air Conditioning Corp, Como Ave Southeast at 33rd, Minneapolis 14, Minn. 8-page bulletin No. 45-46 furnishes construction features, dimensional data, and diagrams on usAIRco Turbo Blowers. Gas boosters are also featured.

B34 **DUST COLLECTORS**—Aerodyne Atlantic Corp, 44 Wall St, New York 5, N. Y. 16-page booklet discusses Aerodyne dust collectors. Design features, general performance data and diagrams are included.

B35 **FIRE BRICK**—Laclede-Christy Co, 3600 Forbes St, Pittsburgh 13, Pa., 6-page folder No. 202 tells about Laclede Keystone dry-press fireclay brick. Specialties and uses are listed.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ **FLUID ENERGY-REDUCTION MILL**—C H Wheeler Mfg Co, SPM Div, 19th & Lehigh Ave, Philadelphia 32, Pa. 8-page leaflet describes a fluid energy-reduction mill, which can be used in the pulverization of coal, cork, minerals, chemicals, foods, grains, etc.

B36 **PACKAGE BOILERS** — York-Shipley Inc, York, Pa. 7 pieces of literature describe the complete line of York power Steam-Pak generators. These include the following: 1—gas fired (N series) for natural, manufactured or mixed gas; 2—oil fired (3 series) for light fuel oil; 3—combination firing (N3 series) for No. 3 oil and gas; 4—oil fired (5 series) for No. 5 fuel oil; 5—Combination firing (N5 series) for No. 5 oil and gas; 6—heavy oil fired (6 series) for heavy bunker C oil; 7—combination firing (N6 series) for No. 6 oil and gas.

B37 **HEATING BOILER** — Kewanee Boiler Corp, Kewanee, Ill. 8-page catalog No. 88-8 features the Kewanee Square-Heat Type R steel boiler for heating medium-size buildings. Specification data for hand-fired coal and for oil, gas or stoker-firing are given.

B38 **STEAM AUXILIARIES** — Texas Co, 135 E 42nd St, New York 17, N. Y. 12-page section, entitled "Steam Power Plant Auxiliaries," of the company's April 1950 issue of "Lubrication" tends to indicate how lubrication of the auxiliaries is related to over-all performance of the plant.

B39 **DUST COLLECTORS** — General Electric Co, Schenectady 5, N. Y. 16-page catalog No. GEA-5212 explains how electrostatic precipitation works and gives case histories of 7 typical installations.

B40 **GAS COMBUSTION**—Eclipse Fuel Engrg Co, Rockford, Ill. Singlesheet No. H-115 features McKee-Eclipse gas gurning equipment for furnaces, ovens, tanks, and other industrial heating processes.

B41 **FUEL OIL TREATMENT**—Power Chemicals Div, E F Drew & Co, Inc, 15 E 26th St, New York 10, N. Y. Technical folder, entitled "Fuel Oil Treatment and Sludge Removing," describes the means of preventing or correcting unsatisfactory conditions in storing, handling, pumping, heating and burning of industrial fuel oil.

B42 **DUST CONTROL** — Ducon Co, Mineola, N. Y. 12-page booklet No. DC 49-145 points out construction and operating features of Duclone collectors. Illustrates efficiency curves, schematic drawings of different industrial applications, etc.

B44 **FLYASH COLLECTOR** — 6-page folder describes the new Buell "LR" flyash collector for efficient flyash prevention on small-boiler installations of limited draft. Size selection and dimensions are included. Buell Engrg Co, Inc, 70 Pine St, New York 5, N. Y.

B45 **CYLINDRICAL STEAM GENERATORS**—4-page bulletin, No. 50-2, contains a detailed summary of design and operating characteristics and operating test data on a 30,000-lb-per-hr Iso-Flow steam-generator installation. Petro-Chem Development Co, Inc, 120 E 41st St, New York 17, N. Y.

B46 **BLOWDOWN SYSTEM** — 4-page folder and chart show plant engineers how to determine the proper-size continuous blowdown system for an installation. Comments on advantages and disadvantages of various types of installations are also listed to assist the engineer in arriving at the most economical system for his plant. Henszey Co, Watertown, Wis.

COMPRESSORS AND ACCESSORIES

C1 **PORTABLE COMPRESSOR** — Davey Compressor Co, Kent, Ohio. Form E-233 contains informative data on the new Davey Super Chief 60-cfm portable air compressor. Photos show numerous applications.

C2 **OIL AND GAS CLEANERS** — American Air Filter Co, Louisville 8, Ky. 8-page pamphlet No. 130-E covers new designs and improvements in the Cycoil Bath air and gas cleaners. Selection charts, dimension tables and detailed engineering data are included.

CONTROLS, ELECTRIC

D1 **ELECTRIC ALARM** — Panalarm Products Inc., 7216 N Clark St, Chicago 26, Ill. 4-page booklet, entitled "Series 300, Panalarms," explains applications of Panalarm signal system which notifies operator when something is wrong. Diagrams of operation specifications and list prices are also given.

D2 **INDICATING PYROMETER CONTROLLER** — Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill. Bulletin MC-1 covers applications, measuring and indicating features, control functions, scale ranges, etc. of the new Multi-Switch Capacitrol, an indicating pyrometer controller.

D3 **D-C BRAKE**—Control Divs, Apparatus Dept, General Electric, Schenectady, N. Y. 6-page folder No. GEA-5194 presents the new line of 2-shoe, 2-magnet d-c brakes. Design features, brake ratings and dimensions are given.

D4 **ELECTRIC CONTROL DEVICES**—Ward Leonard Electric Co, Mt. Vernon, N. Y. 8-page pamphlet No. 100,000 illustrates the company's complete line of rheostats, resistors, relays, motor starters, contactors, control accessories and dimmers.

D5 **CONTROLLERS**—Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill. Leaflet No. PC-1 gives specifications and features of the Panelmount Capacitrol series of indicating, pyrometer controllers.

D6 **D-C CRANE CONTROL** — Control Divs, Apparatus Dept, General Electric, Schenectady, N. Y. 8-page booklet No. GEA-2292B tells about the new d-c crane hoist control. Illustrations and load characteristics are included.

D8 **MOTOR STARTER** — Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. Leaflet No. 14B7215 discusses features and operation of Allis-Chalmers Type RMC manually operated reduced-voltage auto-transformer motor starter.

D9 **VARIABLE SPEED CONTROL** — Reeves Pulley Co, Columbus, Ind. 8-page bulletin No. VN-4912 tells about improved design of Reeves Vari-Speed Jr unit for light hp machinery. Photographs, price list, rating and dimension tables are included.

D10 **RADIATION PYROMETER** — Bristol Co, Waterbury 91, Conn. 12-page booklet No. P1242 explains theory of radiation pyrometry and features of the Pyrovisor radiation unit. Diagrams illustrate accessories offered to adapt the unit for use with furnaces and kilns for indicating, recording and controlling temperatures up to 4000 F.

D11 **SWITCHBOARDS** — Taller & Cooper Inc, 75 Front St, Brooklyn 1, N. Y. 11-page catalog No. PL-100 covers special power-control equipment. Pictured are switchboards, panel boards, gage boards, and control consoles.

D12 **MERCURY SWITCHES** — Industrial Division, Minneapolis-Honeywell Regulator Co, Wayne & Roberts Aves, Philadelphia 44, Pa. 16-page bulletin No. 1343 describes a number of types of Honeywell mercury switches used for electrical switching. Engineering data and selection tables are presented, as well as switch specification charts.

D13 **INDUSTRIAL AND GENERAL-PURPOSE RELAYS**—Ward Leonard Electric Co, Electronic Distributor Div, 53 W Jackson Blvd, Chicago 4, Ill. Catalog No. D-20A covers various types of relays, gives contact ratings, coil specifications, sizes, current list prices, and other helpful data on ac and dc units.

D14 **MOTOR STARTER**—Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. 4-page folder No. 14B7274 presents the Allis-Chalmers oil-immersed, full-voltage Type 371 wall-mounted starter for control of squirrel-cage motors.

D15 **MAGNETIC RELAYS** — Ward Leonard Electric Co, Mount Vernon, N. Y. 12-page catalog No. D-20A consists of seven standard types of magnetic relays for industrial and general-purpose control applications.

D16 **TIME SWITCHES AND TIMERS** —Sangamo Electric Co, Springfield, Ill. 16-page catalog No. 1010M gives informative data on several types of Sangamo time switches and timers. Connection diagrams, installation instructions, and information for ordering are also included.

D17 **ELECTRONIC CONTROLS**—Photoswitch Inc, 77 Broadway, Cambridge 42, Mass. 65-page book, entitled "Cutting Production Costs with Electronic Controls," contains 45 case studies describing actual examples of cost-saving production techniques.

D18 **VOLTAGE REGULATOR**—Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. 12-page booklet No. 01B6424 describes the Allis-Chalmers ⅝% step JFR pole-type regulator designed to correct rural low-voltage conditions and improve service.

D20 **PHOTOELECTRIC CONTROL** — Photoswitch Inc, 77 Broadway, Cambridge 42, Mass. Bulletin No. PA-478 gives informative data on the new Photoswitch photo-electric control Series 20 designed for general industrial and machinery application. Specifications are included.

D21 **ROTARY SWITCH** — Electro Switch Corp, 167 King Ave, Weymouth 88, Mass. 12-page catalog No. 1950-P of ESCO Type P rotary switches gives detailed, up-to-the-minute information on the use of these multi-pole, snap switches for a wide

variety of services in control and transfer of electric circuits.

CONTROLS, MECHANICAL

E1 LIQUID-LEVEL CONTROLLERS—Industrial Division, Minneapolis-Honeywell Regulator Co, Philadelphia 44, Pa. 32-page bulletin No. 48-1 gives special construction features and typical applications of direct-connected and air-actuated controllers.

E2 AUTOMATIC COMBUSTION CONTROL—Coen Co, 40 Boardman Pl, San Francisco 3, Calif. Bulletin No. 40 discusses hydraulic operated, automatic combustion control for gas and oil firing boilers.

E3 PRESSURE GAGES — Bristol Co, Waterbury 91, Conn. Folder No. G620 covers the company's new series 500 absolute pressure gages. Description of the instrument and data on the new principle of operation employed is included.

E4 OIL WELL PUMPING CONTROL—Cutler-Hammer Inc, 294 N 12th St, Milwaukee 1, Wis. Publication No. CS-211 describes the Cutler-Hammer oil well pumping control, designed for across-the-line starting of squirrel cage motors.

E5 PRESSURE REGULATORS — Air Reduction Sales Co, 60 E 42nd St, New York 17, N. Y. 32-page catalog No. 5 covers complete line of pressure regulators. Illustrations of 26 regulators and a section on regulator adapters and pressure gages are included. Also, flow and pressure charts are given.

E6 GOVERNOR CONTROL — Meriam Instrument Co, 10920 Madison Ave, Cleveland 2, Ohio. 4-page folder No. 1000 features Wallene governor control. Informative data contain function, applications and graphs.

E7 AUTOMATIC CONTROLS AND INSTRUMENTS—Perfex Corp, 500 W Oklahoma Ave, Milwaukee 7, Wis. 4-page leaflet No. 5099 shows a typical example of the application of a system of automatic controls and instruments for over-fire draft control of commercial stoker-fired installations.

E8 AIR-OPERATED CONTROLLERS—Bristol Co, Waterbury 91, Conn. 32-page book No. A120 discusses the firm's new line of Series 500 air-operated controllers for automatically controlling temperature, pressure, flow, liquid-level, humidity and pH value.

E9 AUTOMATIC COMBUSTION CONTROLS—Ace Instrument Co Inc, 172 Pacific St, Brooklyn 2, N. Y. 16-page bulletin No. C-22 presents features and illustrations of Ace automatic combustion controls.

E10 COMBUSTION SAFEGUARD — Bristol Co, Waterbury 91, Conn. Brochure No. W1816 tells about Bristol's new combustion safeguard, electronic Pyrotrol. Applications are outlined.

E11 SELF-OPERATED REGULATOR—Powers Regulator Co, 2720 Greenview Ave, Chicago 14, Ill. Bulletin No. 329 gives informative data on No. 11 self-operated regulator, used on water and oil heaters, crude-oil treaters, tanks, vats, kettles, dryers, etc.

E12 COMBUSTION CONTROL—General Power Plant Corp, 381 Fourth Ave, New York 16, N. Y. 8-page booklet No. 103 contains an exposition of the nature of haze and its use as a combustion index. It describes devices ranging from the simplest auxiliary controls for addition to present systems up to complete Robot-Eye installations.

E13 VALVE CONTROLLER — Fisher Governor Co, Marshalltown, Iowa. Bulletin No. 3500 discusses the company's new Series 3500 valve controller, the Positrol.

E14 HYDRAULIC CYLINDERS—Vickers Inc, 1400 Oakman Blvd, Detroit 32, Mich. 28-page booklet No. 49-55 presents a wide variety of styles and sizes of Vickers hydraulic (oil) cylinders. Also contains engineering data, illustrations and dimension tables.

E15 COMBUSTION CONTROL — Ess Instrument Co, Bergenfield, N. J. 4-page leaflet No. 802 tells about Ess Hazegage "electric eye" combustion control, an automatic control especially adapted for use with oil burners, particularly those of the rotary cup type.

E16 COMBUSTION CONTROL—Combustion Control Corp, 77 Broadway, Cambridge 42, Mass. Booklet No. CH 4752 discusses the company's new flame failure safe-guard for light-oil burner. Specifications are given.

E17 INSTRUMENT AND CONTROL PANELS—Hays Corp, Michigan City, Ind. 8-page folder No. 773 explains how Hays panels are made and where they are used. All operations of fabrication are discussed and illustrated—layout, cutting, drilling, welding, fitting, painting, wiring, etc.

E18 ACTUATING CYLINDERS — 12-page booklet, No. 500, gives dimensions and weights, ratings and limitations of the Ledeen line of medium, heavy, and super duty pneumatic- and hydraulic-actuating cylinders. Ledeen Mfg Co, 1600 S San Pedro St, Los Angeles 15, Calif.

E19 PROGRAM CONTROLLERS—Bulletin CH-1 describes Wheelco Chronotrols, automatic time-temperature program controllers used in industrial processing of metals, chemicals, ceramics, etc, where the particular application requires a predetermined heating and cooling cycle to ensure product uniformity and minimize rejects. Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill.

E20 TEMPERATURE REGULATORS—Form No. 230 contains informative data on various types of adjustable, automatic and self-operating Sarco temperature regulators. Sarco Co, Inc, Empire State Bldg, New York 1, N. Y.

For copies of catalogs you need, send in cards on page 203

ELECTRICAL EQUIPMENT

F1 AERIAL CABLE—General Electric Co, Advt & Sales Promotion Div, Construction Materials Dept, Bridgeport 2, Conn. 26-page catalog No. GEA-5157, entitled "Super Coronol Aerial Cable—Preassembled and Field Assembled," contains photographs, detail drawings, and charts pertaining to aerial cables used by electric utility companies. Also included are technical instructions concerning selection and installation of aerial cable, and splicing and terminating instructions.

F2 MOTORS—Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. 8-page folder No. 51B6210B, entitled "The Inside Story of Allis-Chalmers 'Safety-Circle' Motor Protection," cites design and construction features of Safety-Circle drip-proof and splash-proof motors. Also gives dimension and specification chart.

F3 ELECTRICAL INSULATING MATERIALS—Owens-Corning Fiberglas Corp, Textile Products Div, 16 E 56th St, New York 22, N. Y. 36-page publication, "Manual and Catalog of Fiberglas Glass-Base Electrical Insulating Materials," describes Fiberglas and Fiberglas-base materials available for insulation of wire, cable and electrical equipment of all types. Charts and tables covering types of materials and properties, and a list of sources of the materials are included.

F4 FUSES—Trico Fuse Mfg Co, 2948 N 5th St, Milwaukee 12, Wis. Broadside No. 300-A features Trico fuses, fuse clip clamps, test clamps, fuse pullers, lubrication devices, etc. Also shows 13 ways to step up production and cut maintenance costs.

F11 UNIT-COOLED DC MOTORS — General Electric Co, Schenectady 5, N. Y. 4-page booklet No. GEA-4469A tells about GE unit-cooled dc motors, Type CD, 15 to 200 hp, constant or adjustable speed, for dusty, dirty or oil-laden atmospheres.

F12 HORIZONTAL MOTOR — U. S. Electrical Motors, Inc, 200 E Slauson Ave, Los Angeles 54, Calif. 8-page brochure No. 1524 presents U. S. Uniclosed motor in ratings from ¼ to 250 hp. Special features are described and illustrated in detail.

F13 AIR-COOLED TRANSFORMERS—Standard Transformer Co, Warren, Ohio. Bulletin No. S-202A presents Class A and B insulated dry-type air-cooled transformers. Weights, dimensions and full technical data are included.

F14 FUSE DATA—S & C Electric Co, Dept P, 4435 Ravenswood Ave, Chicago 40, Ill. An all-in-one package of Time-Current information for power fuse coordination. 60 pages of curve sheets and engineering data are filed in separate, indexed folders for each fuse line.

F15 BATTERY CHARGER — Electric Products Co, 1725 Clarkstone Rd, Cleveland 12, Ohio. 4-page folder No. 235 describes newly designed, 4-circuit battery charger for servicing motorized hand-lift trucks.

F16 COMMUTATOR AND SLIPRING MAINTENANCE—Ideal Industries Inc, Sycamore, Ill. 40-page handbook of procedures and methods on commutator and slipring maintenance.

F17 VARIABLE-SPEED AC MOTOR—Louis Allis Co, 427 E Stewart St, Milwaukee 7, Wis. 18-page bulletin No. 611-D gives information data on Louis Allis' Adjusto-Speed, an ac variable speed drive. Features are illustrated and described in detail.

F18 LARGE DC MOTORS — Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. 40-page book No. 05B6002A covers latest construction features of Allis-Chalmers' large dc motors.

F19 MOTORS, GENERATORS, CONTROLS—Ideal Electric & Mfg Co, Mansfield, Ohio. Series of 6 catalog-insert bulletins shows varied types of electric motors, generators and controls produced by Ideal.

F20 ELECTRICAL LINE — General Switch Corp, 44 Roebling St, Brooklyn 11, N. Y. 68-page bulletin gives details on complete line of enclosed safety switches, service-entrance equipment, branch-circuit or residence panels, panelboards for light and power distribution, and wireways and fittings.

F21 ELECTRICAL INSULATION — Minnesota Mining & Mfg Co, 900 Fauquier St, St. Paul 6, Minn. 4-page folder describes Scotch-Weld, a new electrical insulating plastic film for coils that is applied like tape and then heat-treated.

F22 PLUGS, RECEPTACLES, CORD CONNECTORS—Russell & Stoll Co Inc, 125 Barclay St, New York 7, N. Y. 12-page booklet No. EL49-275 features automatic-locking Midget Ever-Lok plugs, receptacles, and cord connectors.

F23 RECTIFIER — Raytheon Mfg Co, Waltham 54, Mass. 4-page brochure contains illustrations, diagrams and schematics of the new Raytheon Rectifilter, a battery eliminator. A com-

plete list of models, with full specifications is included.

F24 SELENIUM RECTIFIERS—Westinghouse Electric Corp. P O Box 868, Pittsburgh 30, Pa. Booklet No. DB-19-025 tells the story of Westinghouse standard and high-voltage selenium rectifiers for power supplies and electronic circuits. Tabular presentation of schematic diagrams, formulas for calculating rectifier performance, and cell ratings for a wide range of applications are given.

F25 ELECTRICAL SPECIALTIES — Cutler-Hammer Inc. 234 N 12th St, Milwaukee 1, Wis. 1949-1950 edition of Cutler-Hammer merchandising catalog. Illustrated and described is the company's line of safety switches, service control and multi-breakers, motor control and electrical specialties.

F26 ELECTRIC CABLE—Rockbestos Products Corp. New Haven 4, Conn. 24-page data book, entitled "Rockbestos AVC Cuts Cable Costs," presents advantages, construction details and specification tables of Rockbestos AVC cables. Helpful information for figuring cable requirements and several capacity tables are also given.

F27 MOTOR - GENERATOR SETS — Kato Engrg Co. 1415 First Ave, Mankato, Minn. 4-page form No. 549-MG features Katolight converters, motor-generators and high-frequency generators. Illustrations are included.

F28 PULSE TRANSFORMERS—Raytheon Mfg Co. Dept 6460-NR2, Waltham 54, Mass. Chart No. DLK-315 gives data on Raytheon's line of pulse transformers suitable for use in driver circuits as blocking oscillator or interstage units.

F29 SELENIUM RECTIFIERS — Standard Arcturus Corp. 54 Clark St, Newark 4, N. J. Two sheets describe the Powerector and Kotron selenium rectifiers. Curve data are given.

F30 ELECTRICAL TAPE—Minnesota Mining & Mfg Co. 900 Fauquier St, St. Paul 6, Minn. 4-page brochure tells about Scotch electrical tape No. 27 that stands temperatures up to 300 F. Physical and electrical characteristics are included.

F31 HIGH-CURRENT RESISTOR — Exmet Electrical Corp. 59 Park Ave, New York 16, N. Y. 4-page folder contains informative data on Multipath high-current resistor for industrial, marine and transportation applications. Standard 2-kw unit is illustrated.

F32 AIR-COOLED TRANSFORMERS —Acme Electric Corp. Cuba, N. Y. Catalog No. AC-178 provides detailed specifications on air-cooled transformers from 1/10th—50 kva. A chart shows simple methods of using single-phase transformers in 3-phase hookups.

F33 SWITCHBOARDS, PANELBOARDS — Metropolitan Electric Mfg Co. 22-50 Steinway St, Long Island City 5, N. Y. 5-page bulletin discusses the new Lo-Ohm switchboards, panelboards and enclosed switches.

F34 ELECTRIC MOTORS — Reuland Electric Co. Alhambra, Calif. Single-sheet gives advantages of Reuland Fluid-Shaft electric motors. Specifications are included.

F35 LIGHTING UNITS — Benjamin Electric Mfg Co. Des Plaines, Ill. 40-page catalog, entitled "Benjamin Lighting Equipment for Industry and Commerce," describes and illustrates the most widely used Benjamin lighting units.

F38 LARGE AC GENERATORS — Electric Machinery Mfg Co. Minneapolis 13, Minn. 8-page booklet No. 2200-PRD-196 tells in non-technical language the points to look for when ordering generators. Construction features and recent installations of large slow-speed engine-type generators are shown.

F39 SINGLE - PHASE RECTIFIERS —Accurate Engrg Co, 2005 Blue Island Ave, Chicago 8, Ill. 8-page folder No. 200 describes and illustrates in detail the Accurate line of single-phase tube-type power rectifiers in dc output capacities from 115 to 3680 watts, for industrial applications.

F40 POWER CABLES — General Electric Co. Construction Materials Dept. Bridgeport, Conn. 12-page publication No. 19-269 deals with the method of determining cables and cable sizes of asbestos-varnished cambric cables, Types AVA, AVB, and AVL. Step-by-step instruction is given on figuring load current, voltage drop, cables, and cable sizes for both lighting and motor loads.

F41 WIRE CONNECTORS — Ilsco Copper Tube & Products Inc. Cincinnati 27, Ohio. 68-page catalog No. 50 is replete with illustrations, dimension tables and price lists of the company's line of electrical connectors and accessories.

F42 OIL CIRCUIT BREAKER — Allis - Chalmers, Milwaukee 1, Wis. 8-page folder No. 71B6022C describes in detail Type BZO-160 oil circuit breakers for electrical protection of high - voltage transmission equipment. Construction details are shown.

F43 ELECTRIC MOTORS — Sterling Electric Motors Inc. Los Angeles 22, Calif. 4-page bulletin No. 161A gives informative data on Sterling Slo-Speed electric power drives. Gear-design chart and price sheets are included.

F44 MOTOR CONSTRUCTION — Allis - Chalmers, Milwaukee 1, Wis. 8-page catalog No. 51B-6210B tells the story of Allis-Chalmers' Safety-Circle motor protection. Design and construction features are illustrated.

F46 DRY-TYPE TRANSFORMERS— Allis - Chalmers Mfg Co. 951 S 70th St, Milwaukee, Wis. 8-page folder No. 61B6382A describes versatile and flexible Allis-Chalmers dry-type transformers built in sizes of 1½ kva and larger, single-phase, and 9 kva and larger, three-phase, suitable for duty right at the load center.

F47 COLD CATHODE FLUORESCENT LIGHTING — Fluorescent Lighting Assn, 501 Fifth Ave, New York 17, N. Y. 8-page publication furnishes descriptive data and technical information on the use of standard and custom-coid cathode lamps. Included are sections on installation of cold cathode and charts giving photo-metric data of standard lamps.

F48 CIRCUIT RECLOSER—Westinghouse Electric Corp. P O Box 2099, Pittsburgh 30, Pa. 4-page bulletin No. B-4339 explains operation of the new Westinghouse 100-ampere type GR recloser. Diagrams and semi-pictorial drawings help in visualizing operation step by step.

F49 TERMINALS—Flexilab Products Co. 4945 Colorado Blvd, Denver 16, Colo. Single-sheet broadside No. C-1 features Flexilab electrical terminals and adapters. Construction and design, as well as a few of the many connections possible of these terminals and adapters are illustrated.

F50 INSTRUMENT TRANSFORMERS —Westinghouse Electric Corp. P O Box 2099, Pittsburgh 30, Pa. 12-page catalog No. B-4319 points out construction features of complete Westinghouse line of instrument transformers.

F51 SYNCHRONOUS MOTORS — General Electric Co. Schenectady 5, N. Y. 8-page booklet No. GEA-5426 illustrates and gives informative data on Tri-Clad high-speed synchronous motors. Covered are Type TS (3-phase) and Type QS (2-phase) motors. A list of applications is included.

F52 LARGE DC GENERATORS — Allis-Chalmers Mfg Co. 952 S 70th St, Milwaukee, Wis. 20-page catalog No. G5B7229 shows Allis-Chalmers large dc generators. It contains construction details of units larger than 150 kw, or 0.3 kw per rpm. These include 2- and 3-wire generators and exciters, both engine and coupled type.

F53 ELECTRICAL CONDUITS — National Electric Products Corp, Chamber of Commerce Bldg, Pittsburgh 19, Pa. 30-page book No. 603 describes and illustrates the many types of electrical conduits manufactured by National Electric.

F54 SYNCHRONOUS GENERATORS —General Electric Co, Schenectady 5, N. Y. 8-page publication No. GEA-5415 deals with Tri-Clad high-speed synchronous generators for standby, portable, and prime-source power in wide-spread fields of application.

F55 GENERAL - PURPOSE ELECTRIC MOTOR — Sterling Electric Motors, Los Angeles 22, Calif. 4-page leaflet No. 162A features the Sterling Klosd general-purpose electric motor for use where one best constant-normal speed is required.

F56 UNIT SUBSTATIONS — Westinghouse Electric Corp. P O Box 2099, Pittsburgh 30, Pa. 16-page booklet No. B-4239 discusses ignitron unit substations, which provide a source of dc power near the load directly within the mine or factory building. They can also be applied to railway, mining, electrochemical, general industrial, and other specialized fields.

F57 SMALL POWER TRANSFORMERS — Allis-Chalmers Mfg Co. 952 S 70th St, Milwaukee, Wis. 28-page bulletin No. 61B6084A gives informative data on small power transformers: single-phase, 69,000 volts and below—up to 5000 kva inclusive; and 3-phase, 69,000 volts and below—up to 15,000 kva inclusive.

F58 POWER DUCT—Trumbull Electric Mfg Co, Plainville, Conn. 40-page catalog No. TEB-1 covers LVD and SAC Flex-A-Power, the heavy-duty ducts used as main feeders. Contains construction details, accessories, engineering data and application information.

F59 LIGHT DIMMERS — Superior Electric Co. Hannon Ave, Bristol, Conn. 12-page pamphlet No. 749 features the company's line of Powerstat light dimming equipment. Photographs, circuit diagrams, outline dimensions and descriptive material are included.

F60 CIRCUIT BREAKER — Heinemann Electric Co. 712 Plum St, Trenton 4, N. J. 8-page folder No. 2100 explains development, production and advantages of the non-thermal, fully magnetic panelboard circuit breaker.

F61 SELENIUM RECTIFIERS—Accurate Engrg Co, 2005 Blue Island Ave, Chicago 8, Ill. 16-page booklet No. 300 tells about the new 28 Series single- and 3-phase selenium rectifiers. Detailed descriptions and illustrations are given.

F62 ELECTRIC PLANTS—D W Onan & Sons, Minneapolis, Minn. Two bulletins are offered. 8-page bulletin No. A-168 covers complete line of Onan gasoline-driven electric plants, ranging from 260 to 35,000 watts, in all standard voltages, frequencies and phases. 4-page form No. A-192 describes the firm's entire line of diesel-driven electric-generating plants.

F64 OIL CIRCUIT BREAKERS — Allis - Chalmers Mfg Co. 953 S 70th St, Milwaukee, Wis. 4-page folder No. 71B6093C covers Types OZ-110 and OZ-210 moderate capacity oil circuit breakers of quick-clearing, non-oil-throwing design for outdoor distribution service where reliable and safe operation is required without frequent adjustment or inspection.

F65 SYNCHRONOUS MOTORS—General Electric Co, Schenectady 5, N. Y. 8-page booklet No. GEA 5332 pre-

sents low-speed synchronous motors. Illustrates typical installations of these high-power factor, constant-speed drives. Also describes their construction features, and indicates mechanical modifications and performance data.

F66 **STORAGE BATTERIES** — Gould Storage Battery Corp, Trenton 7, N. J. 4-page leaflet No. GB932 gives detailed instructions on the installation and operation of glass jar batteries for stand-by service, control, telephone, telegraph, emergency lighting, fire alarm and other stationary installations.

F67 **FITTINGS AND DEVICES** — Buchanan Electrical Products Corp, 1290 Central Ave, Hillside, N. J. 12-page catalog features solderless connectors, cable and conduit fittings and wiring devices. Illustrations, dimensional data and application instructions are included.

F68 **TRANSFORMERS** — Erie Electric Co, 120 Church St, Buffalo, N. Y. 12-page bulletin No. 2001-150P shows several types of Niagara transformers. These include: oil-immersed self-cooled; dry air blast; combination oil-immersed self-cooled, forced air-cooled; and non-inflammable liquid self-cooled types.

F69 **ELECTRIC INSULATION**—M W Kellogg Co, Chemical Mfg Div, P O Box 469, Jersey City, N. J. Technical booklet No. 1-12-49 describes physical and mechanical properties of the KEL-F, fluorocarbon-type thermoplastic, non-wetting, high dielectric strength insulation.

F70 **DISTRIBUTION TRANSFORMER** —Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. 8-page leaflet No. 61B7309A gives mechanical data and 5 type designations of the ACP distribution transformer, along with a typical load-time curve for one of the units. Ratings range from 3 through 100 kva—2,400 to 14,400 volts.

F71 **STOCK LIST**—Duquesne Electric & Mfg Co, Broad St & Hamilton Ave, Pittsburgh 6, Pa. 48-page current catalog lists specifications and prices for new and used ac motors, gearhead motors, speed reducers, dc and variable speed motors, transformers, ac and dc generators, mg sets, engine-generator sets, motor starters, pumps, fans and blowers, air compressors.

F72 **DC MOTORS**—4-page broadside, No. PB-8200, Series 1-350 covers Elliott dc motors 250—6000 hp, high and low speed for direct, belt, or gear drive. Construction features are illustrated and a page is devoted to mechanical modifications, such as enclosed models and low-inertia mill-type motors. Elliott Co, Jeannette, Pa.

F73 **PRESSURE TRANSFORMER** — 4-page folder, No. 2250, describes and illustrates the Hagan differential pressure transformer, which is used for measuring differential pressure for indicating, recording and controlling the rate of flow of steam, gas or liquid fuel, water, etc. Hagan Corp, 323 Fourth Ave, Pittsburgh, Pa.

F74 **SWITCHBOARDS** — 8-page bulletin, No. 18B6149A, features duplex switchboards for convenient centralized control, benchboards for concentrated control of meters and relays, and rectifier control cubicles for rectifier auxiliary equipment. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

F75 **ELECTRICAL RESOLVERS** — 12-page booklet, entitled "ARMA Electrical Resolvers," covers 8 new miniature electrical resolvers and 7 others in 2 size groups developed particularly for electrochemical computing and control equipment. Arma Corp, 254 36th St, Brooklyn 32, N. Y.

F76 **CONTROL CABLE**—4-page folder lists specifications and advantages of Rockbestos PNR small-diameter 600-v control cable. Typical applications are shown. Rockbestos Products Corp, 285 Nicoll St, New Haven 4, Conn.

F77 **LIGHTING GUIDE**—32-page brochure, entitled "A Planning Guide to Improved Plant Lighting," covers the latest concepts of planned lighting, benefits to be gained, and methods to employ to put a planned lighting program into effect. Benjamin Electric Mfg Co, Des Plaines, Ill.

F78 **SWITCH CONTROL**—8-page engineering data booklet provides detailed illustrations, descriptions and typical applications of the push-pull selector switch control. A target sheet to aid electrical engineers in plotting electrical control requirements is also included. Arrow-Hart & Hegeman Electric Co, 103 Hawthorn St, Hartford 6, Conn.

F79 **ELECTRIC GENERATOR** — Single-sheet form, No. 350-FCP, tells about a Katolight machine, which can be arranged to provide as many as 6 different frequencies. It gives odd frequencies such as 15, 25, 180 cycles, etc. Kato Engrg Co, 1415 First Ave, Mankato, Minn.

HEAT EXCHANGERS

G1 **AIR COOLERS** — American Locomotive Co, Alco Products Div, Dunkirk, N. Y. 20-page booklet, entitled "Alco Aircoolers," gives informative data on principles of air cooling, and relates basic mechanical facts of radiator core and fintube models of Alco Aircoolers.

G2 **OIL PREHEATER**—Boyar Products Corp, Lombard, Ill. 8-page folder, entitled "Pre-Heat" shows horizontal and vertical electric fuel-oil types of Boyar preheaters. Rating and viscosity temperature charts are given.

G3 **OIL AND WATER COOLERS** — Condenser Service & Engrg Co, Seaboard Trust Bldg, Hoboken, N. J. 20-page bulletin, entitled "Type AL Coolers," contains an engineering section and gives materials of construction on Conseco Type AL lube oil and jacket watercoolers.

G4 **WATER HEATER**—Davis Engrg Corp, 1064 E Grand St, Elizabeth, N. J. 4-page folder No. 190 covers application, design features and advantages of automatic self-cleaning White water heater.

G5 **STEAM-JET AIR EJECTORS** — Condenser Service & Engrg Co, Seaboard Trust Bldg, Hoboken, N. J. 8-page booklet discusses Conseco steam-jet air ejectors for modern, efficient, low-cost air removal from condensers. Principle of operation and engineering data are included.

G6 **STEAM-JET DEAERATORS** — Worthington Pump & Machy Corp, Harrison, N. J. 8-page publication No. W-210-B29 describes the Worthington steam-jet deaerators. Operation data and construction features are explained in detail.

G7 **SHELL AND TUBE HEAT EXCHANGERS** — Young Radiator Co, Racine, Wis. 8-page bulletin No. 1149 tells about new Young Type R (removable tube bundle) shell and tube heat exchangers. Capacities and dimension tables for single- and 2-pass coolers are included.

G8 **EVAPORATIVE COILS** — Binks Mfg Co, 3122 Carroll Ave, Chicago 12, Ill. 4-page folder No. 41 presents informative data on Binks Type D evaporative heat exchange coils, including dimensions, total effective surface, and weights for 17 sizes.

G9 **CONVERTERS** — Davis Engrg Corp, 1064 E Grand St, Elizabeth 4, N. J. 12-page catalog No. 70—Section K features Paracoil converters. 88 standard sizes are described with full dimensional data and capacity ratings.

G10 **HEAT TRANSFER TUBES** — Babcock & Wilcox Tube Co, Beaver Falls, Pa. Bulletin No. TB-329 covers heat exchanger and condenser tubes. Specifications are offered in table form on carbon, low chromium, intermediate chromium, nickle and stainless steels.

INSULATION, HEAT COLD AND VIBRATION

H1 **PIPE INSULATION** — Kaylo Div, Owens-Illinois Glass Co, Box 1035, Toledo 1, Ohio. 4-page bulletin No. 4e/5 describes Kaylo pipe insulation. Contains complete information for specifying and using this calcium silicate insulating material.

H2 **VIBRATION CONTROL** — Korfund Co, 48-48-E 32nd Pl, Long Island City 1, N. Y. 4-page booklet No. ER-701 tells about Elast-Rib, a cork and rubber mounting that requires no bolting or cementing, for controlling transmission of vibration and noise.

H3 **VIBRATION ISOLATORS**—Finn & Co, 2850 Eighth Ave, New York 30, N. Y. 24-page reference book furnishes information on the company's complete line of vibration isolators. Also included is a comprehensive discussion of the theory of vibration isolation and shock.

H4 **ASBESTOS VARNISHED-CAMBRIC INSULATION** — Rockbestos Products Corp, New Haven 4, Conn. Booklet, entitled "The Story of An Insulation," explains constructional features of Rockbestos AVC insulation, showing how and why the conductor can be operated at 110 C.

H5 **SPRAYED-ON INSULATION**—Insul-Mastic Corp of America, Oliver Bldg, Pittsburgh 22, Pa. 28-page bulletin No. G101 features Insul-Mastic Type D, a spray-applied insulation for low temperature work with ability to waterproof, rustproof, deaden sound, prevent condensation and resist fire.

H6 **INSULATING BLOCK**—Kaylo Div, Owens-Illinois Glass Co, Toledo, Ohio. Four-page bulletin describes new heat insulation. Lists advantages of its use, and charts showing heat loss, surface temperatures and efficiencies.

H7 **PIPE INSULATION**—Kaylo Div, Owens-Illinois Glass Co, Toledo, Ohio. Physical characteristics, standard sizes and thicknesses of Kaylo pipe insulation are analyzed in this four-page illustrated booklet.

MAINTENANCE AND SAFETY EQUIPMENT

K1 **VISUAL OILERS**—Gits Bros Mfg Co, 1846 S Kilbourn Ave, Chicago 23, Ill. 8-page catalog shows latest of Gits visual oilers. Detailed information, picture, capacity, thread, dimensions and prices on every oiler are included.

K2 **METAL CLEANING PROCESS** — American Wheelabrator & Equip Corp, 555 S Byrkit St, Mishawaka, Ind. 16-page brochure No. 584 discusses advantages of using Wheelabrator airless blast cleaning equipment. Numerous case history studies are shown.

K3 **TUBE EXPANDERS** — Thomas C Wilson Inc, 21-11 44th Ave, Long Island City 1, N. Y. 6-page catalog No. 420 consists of Wilson-Dudgeon tube expanders for condensers, heat exchangers and general small-tube rolling.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ **FIRE-PREVENTION GUIDE**—Protectoseal Co, 1920 S Western Ave, Chicago 8, Ill. 12-page booklet, entitled "Flammables, Self-Checking Chart," outlines procedures to be followed in helping industry reduce hazard of and loss by fire. Also contains several departmental charts that help to make an accurate check-up on flammable hazards.

K4 **POWER TOOLS** — Beaver Pipe Tools Inc, 349-749 Dana Ave, Warren, Ohio. 36-page brochure No. 49 lists a complete line of hand and electric

power tools for cutting and threading pipe bolts and conduit.

K5 TUBE EXPANDERS — Thomas C Wilson Inc. 21-11 44th Ave, Long Island City 1, N. Y. 8-page brochure No. 380 describes Wilson-Dudgeon line of tube expanders for high-pressure boiler tubes, super-heaters, economizers, waterwalls, circulating tubes, downcomers and risers in stationary and marine steam generators.

K6 PLASTIC BRUSH-COATING—A C Horn Co Inc, 10th & 44th Ave, Long Island City 1, N. Y. 4-page folder discusses Tread-Sure, an abrasive-filled plastic brush-coating that produces an antiskid surface on wood, concrete, or steel deck flooring.

K8 RING PACKING — Greene, Tweed & Co, North Wales, Pa. Single-sheet No. TBPR-619 gives data on Palmetto Pisto-Ring packing designed to replace hydraulic duck and other forms of packing used in inside-packed reciprocating pumps.

K9 FIRE-EXTINGUISHING EQUIPMENT—Ansul Chemical Co, Marinette, Wis. 20-page booklet No. F-4993 illustrates complete line of Ansul dry-chemical fire equipment. Included are improved Model B extinguishers, piped systems, large stationary units, fire trucks, trailers, etc, as well as charts showing characteristics of approved hand fire equipment.

K10 PORTABLE POWER TOOLS — Independent Pneumatic Tool Co, 175 State St, Aurora, Ill. Catalog No. E-2 covers Thor universal electric portable power-tool line including the Silver Line tools. Prices are given. Also, circular No. JE-1131 features the new Thor Silver Line 4½-in. universal electric belt sander.

K11 PIPE LINE SHOCK ABSORBER —R-S Products Corp, 4530 Germantown Ave, Philadelphia 44, Pa. Bulletin consists of description, applications, installation, and list prices of four models of a compact shock absorber, which eliminates shock and hammering in pipelines carrying water or petroleum products.

K12 REFLECTOSCOPE — Sperry Products Inc, Danbury, Conn. 4-page folder No. 50-105 discusses the principle and operation of Type UR reflectoscope, an ultrasonic instrument for instantaneously locating defects in metals and other materials by the application of a single "searching unit."

K17 LUBRICATING DEVICES—Trico Fuse Mfg Co, 2948 N 5th St, Milwaukee 12, Wis. 4-page broadside No. 4800-OB describes and pictures the Trico line of lubricating devices consisting of constant level, gravity-feed, wick feed, thermal, bottle, "Micro-Matic," Vari-Feed," and underfeed oilers; combination oil cups and oil gages.

K18 LEAK DETECTOR — Consolidated Engrg Corp, 620 N Lake Ave, Pasadena 4, Calif. 16-page catalog No. CEC-1801B describes operation, performance, and features of the Consolidated leak detector. A section is devoted to applications and leak-detection methods used in both vacuum and pressure systems.

K19 VERNIER CALIPER — George Scherr Co, 200F Lafayette St, New York 12, N. Y. 2-page leaflet tells about the new Mauser vernier caliper for outside, inside and depth measurements.

K20 COAL-DUST CONTROL — Aquadyne Corp, 220 E 42nd St, New York 17, N. Y. 4-page folder, entitled "Coal Dust Control," discusses the Aquadyne "wet water" system and its application in coal-dust control.

K21 SHAPERS — Cincinnati Shaper Co, Cincinnati 25, Ohio. 32-page bulletin No. N-5 illustrates and describes the Cincinnati line of shapers. Dimensions and specifications of each type are given.

K22 ACID-PROOF DRAINS — Duriron Co, Dayton 1, Ohio. 12-page price list No. H-2 illustrates all Duriron acid-proof drain-line equipment available for handling corrosive wastes from chemical laboratories, engraving shops, chemical plants, plating rooms, steel mills and many other places. Typical installations are listed.

K23 WAGON DRILLS—Worthington Pump & Machy Corp, Construction Equip Sales Div, Holyoke, Mass. 10-page booklet No. H-1200-B36A presents three models of Worthington wagon drills: UMW-40 equipped with a 4-in. cylinder bore; UMW-35 equipped with a 3½-in cylinder bore; and UMW-30 with a 3-in. cylinder bore.

K24 COMBUSTION SAFEGUARD — Wheelco Instruments Co, Chicago 7, Ill. 4-page folder No. F2-1 explains the new 1300 Series Flame-otrol combustion safeguard for oil- and gas-fired furnaces, ovens, boilers, kilns and other heating equipment. A typical application diagram is included.

K25 HAND-HOLE CAPS — Key Co, 2618 McCasland Ave, East St. Louis, Ill. 4-page brochure, entitled "New Life for Old Boilers," describes how old boilers can be rejuvenated at low cost with necessary tube replacements and repairs, and Key safety hand-hole caps.

K26 SAFETY EQUIPMENT—General Scientific Equip Co, 2700 W Huntingdon St, Philadelphia 32, Pa. 46-page catalog, entitled "Everything in Safety," consists of personal protective equipment and industrial safety devices. Price list is included.

K27 TUBE CLEANERS—Elliott Co, Lagonda Div, Springfield, Ohio. 28-page book No. Y-29 covers applications of Lagonda tube cleaners for removing scale and other types of encrustation from tubes or pipes in boiler room equipment, oil refineries, process plants, and other locations.

K28 PIPE AND BOLT MACHINES — Beaver Pipe Tools Inc, Dana Ave, Warren, Ohio. 4-page folder, entitled "What Users Say About Beaver Model-A Pipe & Bolt Machines," contains comments on the use and qualifications of the Model-A power driven pipe and bolt machine.

K29 EXTINGUISHER INSPECTION—Ansul Chemical Co, Marinette, Wis. Company has designed a periodic inspection chart that helps fire inspectors keep accurate records of their extinguishers. Space for 26 inspections of up to 38 extinguishers is provided. Available upon request.

K30 FIRE HAZARD INDEX — Randolph Laboratories Inc, 8 E Kinzie St, Chicago 11, Ill. 36-page, pocket-sized fire hazard index lists, in quick-reference alphabetical order, over 590 chemical, gas and common fire hazard materials.

K31 CENTRALIZED LUBRICATION —Farval Corp., 2262 East 80th Street, Cleveland 4, Ohio. As an aid to engineers with lubrication problems, this 8-page booklet covers six applications where Farval lubrication has solved a problem or where it suits a particular need.

K32 MACHINE REPAIRS — 24-page booklet, No. 05R7417, discusses care of ac rotating equipment. Contents are broken down broadly into preventive maintenance and machine repairs, including drying moist insulation, measuring insulation resistance, bearing clearances and proper machine applications, etc. Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis.

K33 PRECISION LATHES — 8-page catalog, No. L-10, illustrates and describes a new series of Light Ten South Bend lathes. Specifications and prices are given. Attachments and accessories are also listed. South Bend Lathe Works, South Bend 22, Ind.

K34 PURIFYING OIL — 3 bulletins discuss solutions to power interruptions, engine breakdowns, and other utility problems resulting from contaminated turbine, diesel fuel and lube, and insulating oils. Honan-Crane Corp, 200 Superior Ave, Lebanon, Ind.

K35 FIRE FIGHTING—12-page pamphlet, entitled "Abundant Wet Water for Fire Fighting," gives recommended fire-fighting techniques and informative data on the development of Pyrodyne "wet water" capsule and its automatic Hydroblender. Aquadyne Corp, 220 E 42nd St, New York 17, N. Y.

K36 NOISE REDUCTION—A series of bulletins, prepared for maintenance, safety, production and other executives of industry and business, tell how to solve noise-reduction problems on engines and compressors. Burgess-Manning Co, Libertyville, Ill.

K37 TRAVELING SCREENS—Application engineering data sheet No. 821-1 covers control of cleaning cycles for traveling screens. A schematic installation drawing and a typical wiring diagram are among engineering details included. Foxboro Co, Foxboro, Mass.

K38 METAL REPAIRS—4-page issue of **METCO News**, Volume 5-21, shows how metallizing saves money on turbine repairs. Typical applications are illustrated. Metallizing Engrg Co, Inc, 38-14 30th St, Long Island City 1, N. Y.

For copies of catalogs you need, send in cards on page 203

MAINTENANCE MATERIALS

L1 FLUIDS AND LUBRICANTS — Carbide & Carbon Chemicals Corp, 30 E 42nd St, New York 17, N. Y. 28-page booklet Form 6500 discusses various types of UCON poly-alkylene glycol lubricants and the use of these products for lubrication of many types of machinery, gears, internal combustion engines, rubber products, and instruments. Complete physical properties for both the water-soluble and water-insoluble grades of these synthetic lubricants are presented.

L2 HYDRAULIC PACKING — James Walker Packing Co, 96 Liberty St, New York 6, N. Y. 4-page folder tells about the Lion automatic hydraulic packing for high pressures. Also includes diagrams of the packing.

L3 FLOOR REPAIR — Flexrock Co, 3677 Filbert St, Philadelphia 4, Pa. Brochure cites how aircraft, railroad, marine and other industries are meeting floor repair and resurfacing problems with Ruggedwear applied over concrete, brick, stone, composition, steel or wood floors.

L4 FIRE HOSE—B F Goodrich Co, Akron, Ohio. 6-page catalog No. 3740 gives informative data on the methods and materials with which all Goodrich fire hose are constructed. Illustrations of each brand of industrial fire hose, data on size, couplings and test pressures are included. Gaskets, fittings and couplings used with the hose are also described.

L5 SILICONE GREASES—Dow Corning Corp, Midland, Mich. 4-page folder No. D-5 on "Dow-Corning Silicone Greases" gives the properties, performance and uses of these heat-stable and oxidation-resistant silicone lubricants.

L6 INDUSTRIAL AND MARINE PACKINGS — Crane Packing Co, 1800 Cuyler Ave, Chicago 13, Ill. 16-page catalog discusses John Crane packings for industrial and marine services.

L7 SOOT REMOVER — Alken-Murray Corp, 1841 Broadway, New York 23, N. Y. 4-page leaflet, entitled "Alken Certified Soot-Off," cites results ob-

tained by using Soot-Off for soot, fire scale and slag control.

L12 SLUDGE REMOVER — Aiken-Murray Corp, 131 E 23rd St, New York 10, N. Y. Folder, entitled "Beware of Sludgey," explains how to prevent water and impurities in fuel oil from forming sludge, which clogs burner nozzles, oil lines, etc, and prevents burners from functioning properly.

L13 CLEANING INDUSTRIAL EQUIPMENT—Dowell Inc, Kennedy Bldg, Tulsa 3, Okla. A general information bulletin on Dowell's service for cleaning steam generating, heat exchange and other industrial equipment. Also includes pipeline cleaning and waterwall acidizing.

L14 CONCRETE WORK—Gunite Concrete & Construction Co, 1301 Woodswether Rd, Kansas City 6, Mo. 26-page catalog No. 10 points out physical characteristics, adaptability, application and advantages of Gunite concrete work. Typical jobs are illustrated.

L15 CHEMICALLY INERT PACKING —Crane Packing Co, 1800 Cuyler Ave, Chicago 13, Ill. 8-page booklet No. SP-5M649 covers applications and features of John Crane Chemlon, a chemically inert packing.

L16 SHIMS, LOCKNUTS—Laminated Shim Co, 71 Union St, Glenbrook, Conn. 8-page data file gives specifications, design factors and applications of company's shims, locknuts and stampings.

L17 RUBBER AND ASBESTOS PRODUCTS — Manhattan Rubber Div, Raybestos-Manhattan Inc, Passaic, N. J. 16-page leaflet No. 6903 describes rubber and asbestos products for the petroleum industry. Principal R-M products for oil production, refining, transporting and maintenance are also covered.

L18 ANTI-RUST PAINT—Speco Inc, 7308 Associate Ave, Cleveland 9, Ohio. Sheet No. 10M-5-49 contains price schedule and specification list for Rustrem, an anti-rust paint.

L19 SCALE REMOVAL—Aiken-Murray Corp, 131 E 23rd St, New York 10, N. Y. 4-page folder on Scaloff discusses scale formation and prevention in boilers. Photos and diagrams are included.

L20 CORROSION-RESISTANT RESINS—Carboline Co, 7603 Forsyth Blvd, St. Louis 5, Mo. 4-page leaflet No. C-3 tells how to resurface and repair rubber-lined and hard-rubber equipment for corrosive service.

L23 RUST PREVENTIVES — E F Houghton & Co, 303 W Lehigh Ave, Philadelphia 33, Pa. 8-page booklet, entitled "A New All-Star Line-Up of Rust Preventives," points out the many uses for eleven Rust Veto products. A full-page chart outlines the physical properties of each.

L24 REFRACTORY CEMENT—Quigley Co Inc, 527 Fifth Ave, New York 17, N. Y. 4-page folder No. 322F discusses Quigley Q-Chrome, a neutral-base refractory cement. Advantages and uses are listed.

L25 HOSE COUPLINGS—Hose Accessories Co, Lehigh & 17th St, Philadelphia 32, Pa. 4-page bulletin No. 5 gives sizes and weights for complete line of Le-Hi suction and water hose couplings.

L26 CHEMICAL CLEANING SERVICE—Sumco Products Inc, 144 Centre St, Brooklyn 31, N. Y. 4-page brochure describes Sumco chemical cleaning service as applied to steam boilers, condensers, feedwater heaters, and other heat-exchange equipment.

L27 PROTECTIVE COATINGS—Esso Standard Oil Co, 15 W 51st St, New York 19, N. Y. 12-page catalog, entitled "Rust Ban," contains detailed recommendations for selection of rust preventives as well as other pertinent information on the use of Rust-Ban coatings.

L28 PROTECTIVE PAINTS — Lead Industries Assn, 420 Lexington Ave, New York 17, N. Y. 12-page booklet, Red Lead Technical Letter No. 4, presents detailed formulations of high-performance synthetic vehicle paints for protection of iron and steel exposed to marine conditions.

L29 SLUDGE REMOVER — E F Houghton & Co, 303 W Lehigh Ave, Philadelphia 33, Pa. 6-page folder discusses Houghto-Solv, a fast-acting fuel-oil additive that removes sludge from heating systems. Performance data are included.

L30 LUBRICANT - APPLICATION GUIDE — Keystone Lubricating Co, 21st and Lippincott St, Philadelphia 32, Pa. 30-page booklet No. C-10L presents the line of Keystone specialized lubricants for industrial and automotive machinery. Included in the guide are tested recommendations for lubricating all types of bearings under various operating conditions.

L31 TURBINE LUBRICATION — E F Houghton & Co, 303 W Lehigh Ave, Philadelphia 33, Pa. 4-page folder, entitled "Turbo-Drive," discusses problems of oxidation, emulsification, foaming and sludging, as related to turbine lubrication.

L32 GAGE SNUBBER—Parker Appliance Co, 17325 Euclid Ave, Cleveland 12, Ohio. Bulletin No. 380 explains action of the Parker pressure-gage snubber in protecting gages from line shocks and vibration while eliminating needle fluctuation for more accurate readings.

L33 CONCRETE FLOORS — Master Builders Co, Cleveland 3, Ohio. 36-page booklet, entitled "The Masterplate Iron-Clad Concrete Floor," gives full information on the product and its advantages. Job pictures are shown and detailed illustrated directions for laying a Masterplate floor are given.

L34 TOOL WORKING MANUAL — Allegheny Ludlum Steel Corp, Henry W Oliver Bldg, Pittsburgh 22, Pa. 16-page data book, entitled "The Working of Tool and High Speed Steels," contains specific information summarized from laboratory and service tests on various grades in the A-L line. A simple selector chart, procedures and tabulations form a working manual for makers and users of cutting tools and dies.

L35 LOCK WASHER SCREWS — Pheoll Mfg Co, 5700 Roosevelt Rd, Chicago 50, Ill. 28-page bulletin No. 80-A describes "Sems" (lock washer screws) as an assembled screw and free-rotating washer.

L36 VACUUM HOSE—B F Goodrich Co, Akron, Ohio. 4-page folder No. 4780 pictures and describes industrial vacuum hose, which handles dust, abrasive scrap and toxic fumes in many industries. Construction details, recommended uses and specifications are given.

L37 CAST SPROCKETS — Chain Belt Co, 1600 W Bruce St, Milwaukee 4, Wis. 16-page catalog No. 48-30 covers Rex stock-size cast sprockets for the complete line of Rex drive and conveyor chains. Dimensions, specifications, list prices, sprocket style and all other necessary information are included.

L38 ANTI-PRECIPITATING AGENTS —E F Drew & Co, Power Chemicals Div, 15 E 26th St, New York 10, N. Y. 4-page technical bulletin tells about the use of anti-precipitating agents for the prevention of scale, deposits and corrosion in cooling systems, service water lines, heat exchangers and other process equipment.

L39 CHEMICAL RESISTANT COATINGS—Wilbur & Williams Co, Greenleaf & Leon Sts, Boston 15, Mass. 4-page folder contains valuable information on applications for maximum chemical, moisture and rust resistance in varied industries for all metal, concrete and wood.

L40 SHEET PACKING—B F Goodrich Co, Akron, Ohio. 4-page publication No. 5000 lists specifications and outlines uses of the different kinds of sheet packing that the company manufactures for handling liquids, gases and abrasives.

L41 METALLIC PACKING — A W Chesterton Co, 6 Ashland St, Everett 49, Mass. 4-page folder gives informative data on Chesterton 444 Austin-Mason elastic metallic packing, for use on ammonia, carbon dioxide, steam, air, water, brine, etc. Construction features and advantages are explained.

L42 BATTERY MAINTENANCE — Gould Storage Battery Corp, Trenton 7, N. J. 3-page bulletin, entitled "Instructions for the Maintenance of Gould Batteries for Diesel Engine Cranking Service," presents 14 valuable battery maintenance procedures covering battery care from initial installation through complete charging operations.

L43 WATERPROOFING — Prufcoat Laboratories, 63 Main St, Cambridge 42, Mass. 4-page leaflet tells about Pruftite, a liquid formulation for controlling water seepage and dampness. It may be applied on either interior or exterior surfaces of brick, concrete, cement, plaster, stucco and concrete masonry units.

L44 SELF-LUBRICATING PACKINGS — Greene, Tweed & Co, North Wales, Pa. 4-page folder No. LP-10 discusses in detail Palmetto (R) self-lubricating packings for all industrial requirements. Illustrations and specifications are given.

L45 DUST CONTROL — Aquadyne Corp, 220 E 42nd St, New York 17, N. Y. 4-page bulletin, entitled "Controlling Dust in Industrial Plants," explains how many savings stem from dust controlled with simple, inexpensive Aquadyne chemical wetting process.

L46 AIR-PLACED CONCRETE — Gunite Concrete & Construction Co, 1301 Woodswether Rd, Kansas City 6, Mo. 24-page book No. 10 illustrates applications of Gunite concrete. Physical characteristics and advantages are listed.

L53 REFRACTORY CONCRETE — 24-page booklet, revised edition, entitled "Lumnite Refractory Concrete," contains detailed information on refractory concrete mixes—proportions of Lumnite and various aggregates—and tables for selecting proper types for a wide range of temperatures and insulating conditions. Lumnite Div, Universal Atlas Cement Co, Chrysler Bldg, New York 17, N. Y.

L54 OIL SEALS—16-page handbook, entitled "Johns-Manville Clipper Seal," is divided into sections on the principle of Clipper seals, their construction, advantages in various applications, installation data, and other information of interest to oil seal users. Johns-Manville, 22 E 40th St, New York 16, N. Y.

L55 REFRACTORY CEMENT — Bulletin No. R-49 lists applications and qualities of R & I Moldit-D refractory cement. Illustrations are included. Refractory & Insulation Corp, 120 Wall St, New York 5, N. Y.

L56 PACKING — 3 publications describe Walker's line of Lion Twin-Pak ring packing; Lion Shallex packing for shallow stuffing boxes; Lion Unilip and Two-Lip heavy-duty hydraulic packings. Design features and service recommendations are given. James Walker Packing Co, Inc, 96 Liberty St, New York 6, N. Y.

L57 ANTIRUST PAINT — Single-sheet contains price schedule and specification list on Speco Rustrem, antirust paint, which can be applied

over rust without wire brushing or scraping. Speco, Inc, 7308 Associate Ave, Cleveland 9, Ohio.

L58 **BEARING BRONZE**—2 bulletins, No. 150 and 250, cover semi-finished die-cast bearing bronze shapes and special bar stock sizes up to 19-in. OD. up to 40-in. long solid, and up to 20-in. long cored. Special services include flange and split bushings and thin-wall sleeves. Magnolia Metal Co, 18 W Jersey St, Elizabeth 4, N. J.

L59 **EXTRACTORS** — 8-page leaflet features Reps pipe and stud extractors. Tells how they work, gives prices and a list of recommended sizes Reps Tool Co, Box 5, Elmwood Branch, Hartford 10, Conn.

L60 **SELF-LOCKING RINGS**—6-page broadside, No. 5, consists of a series of Waldes Truarc self-locking rings. Complete engineering data, specifications, and typical applications for each ring type are given. Truarc Sales Div, Waldes Kohinoor, Inc, 47-16 Austel Place, Long Island City 1, N. Y.

MATERIALS HANDLING EQUIPMENT

M1 **MAGNETIC SEPARATORS AND METAL DETECTORS**—Eriez Mfg Co, 955 E 12th St, Erie, Pa. 12-page bulletin No. 14 presents complete line of Eriez permanent nonelectric magnetic separators and electronic metal detectors. Specifications regarding weights, sizes and strength comparisons as well as tables of operating capacities are given. All pieces of equipment are illustrated. Also discussed are factory engineering and laboratory services offered by the company.

M2 **COAL PREPARATION** — Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 28-page booklet No. 2355, entitled "Scientific Coal Preparation Methods and Equipment," shows installation views, flow-sheet diagrams and other ideas for low-cost handling and better preparation of coal at the mine.

M3 **ALLOY CHAIN** — S G Taylor Chain Co, Hammond, Ind. 12-page leaflet, entitled "Taylor Made Alloy Steel Chain," contains complete specifications, working load limits, definitions and cautions, recommended use and details of chain service for Taylor alloy steel chains, sling chains and attachments.

M4 **COAL DISTRIBUTOR**—Richardson Scale Co, Clifton, N. J. 4-page booklet No. 1349 features the Monorate, a non-segregating coal distributor for stoker firing. Illustrations and cross-section diagrams show the engineering principle involved.

M5 **CAR SHAKEOUT** — Robins Conveyors Div, Hewitt-Robins Inc, Passaic, N. J. 4-page brochure No. 130 introduces the new, lighter-weight Robins car shakeout, model GS, designed to unload up to 15 cars a day.

M6 **TRUCKS AND RACKS**—Barrett-Cravens Co, 4609 S Western Blvd, Chicago 9, Ill. 4-page catalog No. 4881, entitled "Time Savers," presents the various materials-handling equipment which supplement the basic Barrett lines; lift trucks, elevators and storage racks. Prices are included.

M7 **PORTABLE CONVEYORS** — Lake Shore Engrg Co, Iron Mountain, Mich. 8-page folder No. 495 shows Tote-All lightweight, portable power conveyors for handling bulk materials and packaged goods.

M8 **BULK WEIGHING SCALES** — Richardson Scale Co, Clifton, N. J. Two illustrated bulletins describe latest models of automatic bulk weighing machines. Bulletin No. 1549 gives complete information on the Richardson belt-fed Class 39 scale. Bulletin No. 1449 discusses the Class 40 scale, designed for optional methods of feed.

M9 **COAL HANDLING EQUIPMENT** —Baughman Mfg Co Inc, Jerseyville, Ill. Form No. A-121-6915M presents the Baughman Model No. 215 direct feed bin-to-stoker screw conveyor. Illustrations of adaptability are shown.

M12 **ELEVATOR CONTROL** — Otis Elevator Co, 260 Eleventh Ave, New York 1, N. Y. 8-page booklet No. B-2056-9450 describes operation of an individual supervisor's control unit for Autotronic elevatoring.

M13 **SCREEN CLOTH**—Robins Conveyors Div, Hewitt-Robins Inc, 270 Passaic Ave, Passaic, N. J. 16-page catalog No. 113-A gives informative data on Robins woven-wire screen cloth. Tables enable the reader to determine at a glance the sizes of openings available for a given diameter of wire.

M14 **SWITCHING LOCOMOTIVE** — General Electric Co, Apparatus Dept, Schnectady 5, N. Y. 16-page bulletin No. GEA-3810A describes 80-ton diesel-electric locomotive for industrial switching. Fully illustrated, the bulletin points out salient features of the unit.

M15 **BELT CONVEYORS** — Lippman Engrg Works, 4603 W Mitchell St, Milwaukee 14, Wis. 32-page book No. 1400 gives complete information on stationary, portable and 16 types of special-purpose belt conveyors, both troughed and flat belt.

To order catalogs, use cards on page 203

M16 **MOBILE POWER UNIT**—Sinex Projects Inc, 40 Wall St, New York 5, N. Y. 4-page folder No. 100-MU presents the Sinex 100-kw mobile power unit. Specifications, design features and applications are given.

M17 **RESEARCH AND MANUFACTURING** — Caterpillar Tractor Co, Peoria 8, Ill. 16-page booklet No. 12394 highlights research and manufacturing processes behind Caterpillar diesel track-type and wheel-type tractors, engines, and earthmoving equipment.

M18 **BAR SCREEN**—Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 4-page bulletin No. 2327 explains the new Link-Belt Thru-Clean bar screen for efficiently removing trash and large solids from water and sewage at water, sewage and industrial-waste treatment plants. Several models are illustrated.

M19 **MAGNETIC SEPARATOR** — Dings Magnetic Separator Co, 4740 W Electric Ave, Milwaukee 14, Wis. 8-page catalog No. C-5000A describes Dings high-intensity induced-roll and cross-belt magnetic separators and several other types of equipment. Data include brief specifications and lists of applications.

M20 **ASH CONVEYORS** — National Conveyors Co Inc, 50 Church St, New York 7, N. Y. 8-page leaflet contains illustrations and descriptions of the company's line of mechanical and pneumatic ash conveyors, rotary feeders, valves, gates, furnace doors, etc.

M21 **COAL HANDLING** — Gifford-Wood Co, Hudson, N. Y. Booklet No. 300 presents 14 case histories of coal handling and storage systems based on the use of Gifford-Wood's four basic types.

M22 **WIRE ROPE** — Macwhyte Co, Kenosha, Wis. 4-page leaflet No. 49-30 lists 133 different sizes and types of corrosion-resisting wire rope. Constructions of various types are described and illustrated.

M23 **CONVEYING SYSTEM** — Fuller Co, Fuller Bldg, Catasauqua, Pa. 24-page booklet No. FK-25 presents informative data on Fuller-Kinyon conveying systems for unloading and conveying dry pulverized materials. Details of construction and operation, diagrams and typical installations are included.

M26 **MATERIALS HANDLING MANUAL**—Aerol Co Inc, 2820 Ontario St, Burbank, Calif. Catalog has complete illustrations of all Aerol products and drawings which show exactly how they solve particular materials handling problems. Dimensions, load ratings, and code numbers are tabulated for quick and easy reference.

M27 **HEAVY-DUTY SCALPER**—Robins Conveyors Div, Hewitt-Robins Inc, 270 Passaic Ave, Passaic, N. J. 4-page bulletin No. 131 describes and illustrates an unusual vibrating machine able to scalp-off huge lumps of solid rock as big as 5x5x5-ft and weighing 1½ tons or more per piece.

M28 **GRAIN PROCESSING** — Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 20-page book No. 2305 shows and briefly describes materials-handling and power-transmission equipment that the company most commonly supplies to grain and allied processing industries for efficient, low-cost operation.

M32 **HAND HOISTS**—Wright Hoist Div, American Chain & Cable Co, Inc, York, Pa. 6-page folder No. DH-164 contains information on the new line of Wright Safeway hand hoists. Complete specifications, action photographs, a cross sectional view, graphic illustrations, and a list of its features are included.

M33 **POWERHOUSE CRANE**—Whiting Corp, Harvey, Ill. 8-page bulletin Sec 300-Unit 73 illustrates the variety of cranes built by Whiting for service in the power industry. A partial list of over 350 powerhouse crane installations is given.

M34 **AIR EXPRESS** — Air Express Div, Railway Express Agency, 230 Park Ave, New York 17, N. Y. 26-page pamphlet, entitled "Reference File of Air Express Uses," relates in convenient card index form, some case histories telling how Air Express transportation is helping American business and industry to keep ahead of competition and how to expand the markets for their products.

M35 **ASH HANDLING**—John Thompson Conveyor Co, Ettingshall, Wolverhampton, England. 4-page folder features the John Thompson submerged belt ash conveyor. Descriptive data is given, as well as a cross-section view.

M36 **CONVEYOR SYSTEM** — 6-page bulletin, No. 3849, describes the company's new, precise proportioning and blending system, heart of which is the Conveyometer, a self-testing feeder-weigher designed for "stream" delivery of small, crushed, granular or nonflushing, ground materials. Richardson Scale Co, Clifton, N. J.

M37 **DIESEL TRACTOR** — 29-page booklet, No. 12676, explains quality features of Caterpillar D8 diesel track-type tractor. Illustrations and specifications are included. Caterpillar Tractor Co, Peoria 8, Ill.

M38 **VIBRATORY FEEDERS** — 16-page catalog covers the Syntron line of Vibra-Flow vibratory feeders, long conveyors, multiple magnet models, furnace feeders, infrared dry feeders, etc. Syntron Co, 492 Lexington, Homer City, Pa.

M39 **ELEVATORS** — 24-page pamphlet entitled "Vertical Transportation," gives informative data and illustrates the Otis line of passenger elevators, escalators, freight elevators, dumbwaiters and company services. Otis Elevator Co, 260 11th Ave, New York 1, N. Y.

M40 **CYCLONE THICKENER**—Four-page two-color booklet illustrates and describes 3-in., 8-in., and 14-in. thickener for use as both thickener or classifier. Flow charts show applications. Heyl & Patterson, Inc, 55 Water St, Pittsburgh, Pa.

M41 **COAL DRYER** — Thermal coal dryer handling stoker size coal (min. bottom size 1½ mm) is covered in this four-page booklet. Schematic arrangement and capacities given. Heyl & Patterson, Inc, 55 Water St, Pittsburgh, Pa.

MECHANICAL TRANSMISSION

N1 GEARSHIFT DRIVES—Lima Electric Motor Co, Lima, Ohio. Folder No. DB-1 covers in detail Lima gearshift drives for selective-speed machine operation and cites complete type and gear ratio information. Also gives frame sizes and styles of Lima electric motors, and data on pedestal grinders; buffing and polishing lathes. All equipment is illustrated.

N2 SPEED CHANGER — Metron Instrument Co, 432 Lincoln St, Denver 9, Colo. A single-page bulletin No. 99 features the miniature variable-ratio speed changer. Description of adjustable-speed drive, operating principle, applications and design features are included.

N3 RIVETLESS CHAINS — Wilmot Engrg Co, Hazleton, Pa. 288-page catalog No. C461 gives informative data on the Keystone rivetless chains and attachments. Catalog also contains diagrams, specifications and dimensions of the Wilmot line of equipment including conveyors, elevators, shaft couplings, traction wheels, sprockets, safety collars, band brakes, pulleys, gears, pinions, sheaves, etc.

N4 GEARMOTORS — Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 12-page booklet No. 1815A illustrates and explains double and triple reduction units of new design, with Link-Belt motor mounted concentrically in line with the output shaft.

N5 BELLOWS-TYPE SHAFT SEAL—Crane Packing Co, 1800 Cuyler Ave, Chicago 13, Ill. 4-page brochure gives construction and operation data of the John Crane bellows-type shaft seal centrifugal and rotary pumps, refrigeration compressors, gear boxes and other industrial applications.

N6 V-BELT DRIVE — T B Wood's Sons Co, Chambersburg, Pa. 96-page catalog No. 192 contains stock drive tables, engineering data and examples for selecting a Sure-Grip V-belt drive. Also includes sections devoted to special drives, sheaves, V-belts and general engineering information.

N7 SILENT CHAIN DRIVES—Link-Belt Co, Ewart Plant, 220 S Belmont Ave, Indianapolis 6, Ind. 36-page book No. 2065 covers Link-Belt silent chain drives for automotive and industrial engines, busses and trucks. Tables of dimensions and illustrations are given.

N11 BALL AND ROLLER BEARINGS —Link-Belt Co, 307 N Michigan Ave, Chicago 1, Ill. 112-page data book No. 2550 covers the company's complete line of ball and roller bearings. Construction features, list prices, weights, load ratings and all necessary dimensions for various standard models available are included.

N12 MULTIPLE V-BELT DRIVE — Fort Worth Steel & Machy Co, 3600 McCart St, Fort Worth, Texas. 40-page catalog No. 50 is replete with selection and application tables of multiple V-belt drive. Complete engineering data are given.

N16 DISK CLUTCHES — Edgemont Machine Co, Dayton, Ohio. 12-page bulletin No. SF-5 tells about Edgemont Type SF disk clutches. Application, price lists and data are included.

N17 BALL BEARINGS — New Departure Div, General Motors Corp, Bristol, Conn. 16-page booklet describes and illustrates five distinct types of New Departure self-sealed and lubricated-for-life ball bearings designed for belt and trolley conveyors, foundry-mold car wheels and similar applications.

N19 ROLLER CHAINS—Chain Belt Co, 1600 W Bruce St, Milwaukee 4, Wis. 24-page book No. 49-2 discusses the broad application of roller chain by means of a representative showing of very unusual applications.

N20 SPEED REDUCERS — Falk Corp, 3001 W Canal St, Milwaukee 8, Wis. Bulletin No. 1110 provides complete engineering data on Falk parallel-shaft sleeve-bearings speed reducers in handy easy-to-read form.

N21 TRANSMISSION BELTING — B F Goodrich Co, Akron, Ohio. 4-page catalog section No. 2100 pictures and describes various types of rubber transmission belting. Recommended uses are listed and specifications given.

N22 CLUTCH COUPLING — Centric Clutch Co, 22-26 South Ave, West Cranford, N. J. Single-sheet bulletin No. T-649 features Rawson clutch coupling with taper bushings. Dimension and rating tables are included.

N23 SPEED REDUCER — Dodge Mfg Corp, Mishawaka, Ind. 16-page brochure No. A-470 presents the new Dodge Torque-Arm speed reducer augmented by full-size photos of the entire mechanism and simplified selection tables.

N24 SLEEVE TYPE BEARINGS — Buckeye Brass & Mfg Co, 6410 Hawthorne Ave, Cleveland 3, Ohio. Catalog No. 480 contains sections devoted to progressive size and numerical listing of over 1000 standard stock bearings; 270 sizes of popular 13-in. fully machined maintenance bars, etc.

N25 SPEED REDUCERS—Cleveland Worm & Gear Co., 3284 East 80th St., Cleveland 4, Ohio. Bulletin 125, 8 pages, illustrates and describes Types NU and ND vertical speed reducers. Pictures show construction, and charts give load capacities.

N26 SPEED REDUCERS — 8-page booklet, No. 125, presents 2 new Cleveland vertical speed reducers, particularly suited to such equipment as agitators and mixers, and for use in connection with supplementary low-speed spur-gear drives, without outboard bearings. Cleveland Worm & Gear Co. 3262 E 80th St, Cleveland 4, Ohio.

N27 MERCURY CLUTCHES—3 bulletins: No. 216 describes the Mercury clutch in general, listing and illustrating various applications; No. 217 deals with Mercury Automatic clutches applied to gasoline engines; No. 218 covers electric-motor installations. Automatic Steel Products Inc, Canton 6, Ohio.

N28 SHAFT COUPLINGS — 8-page folder, No. 50, discusses sphere gear shaft couplings. Diagrams and dimension tables are included. Dykman Mfg Co, 41 Park Row, New York 7, N. Y.

METALS AND ALLOYS

R2 CONSTRUCTION MATERIALS — Fischer & Porter Co, 97 County Line Rd, Hatboro, Pa. 4-page catalog section No. 97 lists materials of construction and packing materials for use with over 300 industrial liquids and gases. This tabulation of corrosion-resistant materials is up-to-date for ready reference.

R3 NICKEL-ALLOYED CAST IRONS —International Nickel Co, 67 Wall St, New York 5, N. Y. 36-page booklet, entitled "Engineering Properties and Applications of Ni-Hard," explains the service uses nickel-alloyed cast irons have in various industries. Properties and applications of Ni-Hard are fully illustrated, and a list of stock and service centers for Inco products is also given.

R4 MONEL—International Nickel Co, 67 Wall St, New York 5, N. Y. 6-page folder, entitled "How To Eliminate Unnecessary Shutdowns," presents technical information on materials used for equipment in pulp and paper plants, with particular reference to that used for such specific items as washers, deckers, savealls, thickeners, filters, etc.

R5 ALLOY STEEL—American Manganese Steel Div, American Brake Shoe Co, Chicago Heights, Ill. 12-page bulletin No. 449-ML discusses alloy steels for ball mill liners and grates. Characteristics and uses of these alloys are described in detail with charts and pictures.

R8 CORROSION-RESISTING SHEET AND PLATE — Duriron Co, Inc, Dayton 1, Ohio. 8-page leaflet No. 502 describes Durimet 20, corrosion-resisting sheet and plate. Installation photos and lists are included.

R9 HEAVY-DUTY BABBITT — Magnolia Metal Co, Elizabeth 4, N. J. Single-sheet presents the company's new DZL heavy-duty, genuine babbitt for sleeve bearings subject to combined weight, heat and shock.

R10 METAL DRAWING—Esso Standard Oil Co, 15 W 51st St, New York 19, N. Y. 12-page folder, entitled "Drawing Compounds for Metals," contains detailed recommendations for selecting drawing compounds for use on various ferrous and non-ferrous metals in stamping, forming, wire drawing, tube drawing, tube bending, etc.

R11 CALCIUM CARBIDE — National Carbide Corp, 60 E 42nd St, New York 17, N. Y. 16-page leaflet, entitled "The Miracle of Calcium Carbide," traces the history of calcium carbide from the time of its discovery as a commercial possibility over 50 years ago, through the development of manufacture and the current and potential usage of commercial calcium carbide, acetylene gas, and calcium hydrate residue.

R12 HARDENING COMPOUND—Wilson Carbon Co, 60 E 42nd St, New York 17, N. Y. Bulletin No. 11 is a technical report on treating carbon steel with new activated carbon-chromium hardening compound, *High-Speed-It*.

R14 STEEL CASTINGS CHART — Steel Founders' Society of America, 920 Midland Bldg, Cleveland 15, Ohio. 4-page folder consists of factual engineering data emphasizing versatility, strength and dependability of steel castings, incorporated in a comprehensive technical chart as an aid to design engineers and purchasing department engineering staffs.

R15 BRONZE BARS—National Bearing Div, American Brake Shoe Co, 4930 Manchester Ave, St. Louis 10, Mo. 6-page folder covers the company's expanded line of cored and solid Tiger bronze bars in all popular sizes, both rough and machined.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ FERROUS METALLURGY—Templ Corp, 132 W 22nd St, New York 11, N. Y. Chart, entitled "Basic Guide to Ferrous Metallurgy," shows the working characteristics of steels in temperatures from minus 300 F to 2900 F. All important temperature zones for welding are clearly defined.

R16 COPPER-BASE DIE ALLOYS — Ampco Metal Inc, 1745 S 38th St, Milwaukee 4, Wis. 4-page article, entitled "Copper-Base Die Alloys," describes advantages, how best results are secured, producing, preparing and machining of such dies.

R19 HIGH TEMPERATURE STEELS —U. S. Steel Corp, 429 Fourth Ave, Pittsburgh 19, Pa. 88-page book, entitled "Steels for Elevated Temperature Service," consists of several sections dealing with measurement of flow under stress at elevated temperature; factors affecting high temperature properties; behavior of steels at elevated temperature; tabular and graphical data; and facilities for research, development and testing.

R20 CORROSION-RESISTANT ALLOYS — Haynes Stellite Div, Union Carbide & Carbon Corp, Kokomo, Ind. 40-page catalog, entitled "Hastelloy High-Strength, Nickel-Base, Corrosion-Resistant Alloys," tells complete story of the 4 Hastelloy alloys—what they are, how they can be fabricated, and also how they can be used to combat severe corrosion.

R21 **COPPER ALLOY**—28-page publication, No. B-34, 3rd edition, consists of 2 sections. First part lists Anaconda's most generally used alloys, together with all applicable specifications. Second part lists specifications in numerical order with a brief description of materials covered as to grade, type, temper, anneal, etc. American Brass Co, Waterbury 20, Conn.

R22 **STEEL BOILER TUBES**—Technical bulletin No. TB-331 gives informative data on electric-resistance-welded steel boiler tubes. Tables are furnished on maximum allowable working pressures for different diameters and gauges of tubes for watertube and fire-tube boilers. Babcock & Wilcox Tube Co, Beaver Falls, Pa.

T4 **pH RECORDER** — Foxboro Co, Foxboro, Mass. 16-page booklet No. 430 describes and illustrates the equipment offered by Foxboro for the measurement and control of pH in industrial processing operations. The theory, which is applied in actual pH control instrumentation, is explained in text and diagrams.

T5 **FLOW METERS**—Builders-Providence Inc, 14 Codding St, Providence 1, R. I. 16-page catalog No. 400-F2 gives informative data on the Model SMDH Shuntflo meters for steam, air or gas. Cross-section views, typical specifications, capacity tables, correction factor charts and data sheet are included.

For copies of catalogs you need, send in cards on page 203

METERS AND INSTRUMENTS, ELECTRICAL

S1 **INSULATION TESTER**—James G Biddle Co. 1316 Arch St, Philadelphia 7, Pa. 24-page bulletin No. 21P8-24 illustrates simplicity of making insulation resistance measurements with a Megger insulation tester.

S2 **ALARM SILENCER** — Automatic Control Co, 1005 University Ave, St. Paul 4, Minn. Booklet No. 7400 describes the Autocon Model ABS alarm silencer and lists suggested applications.

S3 **AC AND DC INSTRUMENTS** — Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill. Leaflet No. AC-1 features a new line of ac and dc measuring, indicating, signaling and recording instruments. Price lists and specifications are included.

S4 **RECORDING OSCILLOGRAPHS**—Consolidated Engineering Corp, 620 N Lake Ave, Pasadena 4, Calif. 16-page publication, entitled "Consolidated Recording Oscillographs," discusses applications, operations, and features of multichannel recording oscillographs.

S5 **WATTHOUR METER** — Roller-Smith, Bethlehem, Pa. 12-page catalog No. 4425 illustrates and explains the different parts assembled into the Type S-3 watthour meter. Operating characteristics are included.

S6 **METER ELEMENTS** — Marion Electrical Instrument Co, Manchester, N. H. 12-page pamphlet discusses elements of Marion ruggedized electrical indicating instruments. Diagrams are included.

S7 **INSULATION TESTERS** — James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa. 8-page bulletin No. 21-46 gives informative data on rectifier and dual-operated models of the Meg Type of Megger insulation testers. Applications and specifications are listed.

METERS AND INSTRUMENTS, MECHANICAL

T1 **RECORDER LINE**—Foxboro Co, Foxboro, Mass. 32-page bulletin No. 427 presents complete company line of Dynalog instruments for process measurement and control, as well as the various auxiliary devices that adapt them to their many industrial applications.

T2 **CHLORINIZER** — Builders-Providence Inc, 14 Codding St, Providence 1, R. I. 4-page folder No. 840-F2 discusses the Model DVS chlorinizer. Features, illustrations and operation data are included.

T3 **AIR METER**—Anemostat Corp of America, 10 E 39th St, New York, N. Y. 4-page brochure No. 25A explains the operation and application of the new Anemotherm air meter. Photographs show how the instrument is used to measure air velocity, air temperature and static pressure.

T6 **FLOW RATE METER** — Simplex Valve & Meter Co, 68th & Upland Sts, Philadelphia 42, Pa. 18-page bulletin No. 400 contains sizes and capacities, construction, specifications and operation of the Type H meter, a flow rate indicating and recording meter.

T7 **FLOW METERS** — Builders-Providence Inc, 14 Codding St, Providence 1, R. I. 16-page brochure No. 400-F1 presents the Shuntflo meter Model SMKS for steam, air or gas. Several pages are devoted to capacity tables while the rest give diagrams, description and features.

T8 **INDICATING GAGES**—Star Brass Div, Williams & Hussey Machine Co, Wilton, N.Y. 4-page folder illustrates the Star line of superbronze noncorrosive indicating gages. Construction details, types, ranges as well as improvements that have been made are discussed.

T9 **INSULATION - RESISTANCE MEASUREMENT** — Associated Research Inc, 3758 W Belmont Ave, Chicago 18, Ill. 4-page booklet No. 209 lists capacities and specifications of all Vibrotest models from 100 to 50,000 megohms and cites advantages of self-contained power unit eliminating hand cranking.

T10 **DIAL THERMOMETERS**—Powers Regulator Co, 2720 Greenview Ave, Chicago 14, Ill. Bulletin No. 355 features vapor-pressure-actuated dial thermometers. Available with rigid stem for use in pipelines and tanks, or flexible-tubing type for ascertaining temperature at a point some distance from the dial.

T11 **LIQUID LEVEL GAGE** — Vapor Recovery Systems Co, P O Box 231, Compton, Calif. 8-page booklet covers operation and construction of the Varec electronic gager. Diagrammatic installations are included.

T12 **PRESSURE GAGES** — Helicoid Gage Div, American Chain & Cable Co, Bridgeport 2, Conn. 16-page catalog No. DH-818 explains how the Helicoid gage operates and familiarizes users with the various parts. Also shows large cutaway views.

T13 **LIQUID-LEVEL GAGE** — Jerguson Gage & Valve Co, 80 Fellsway, Somerville 45, Mass. Sheet No. 120 tells about new Jerguson Truscale distance-reading gage for liquid-level indication of water in boilers, deaerating tanks, etc.

T14 **RECORDING THERMOMETER**—Bristol Co, Waterbury 91, Conn. Bulletin No. T842 relates the use of the company's traveling-oven recording thermometer to record finishing, lacquering, japanning, drying and baking temperatures.

T15 **INSTRUMENT CATALOG** — H-B Instrument Co, 2633 Trenton Ave, Philadelphia 25, Pa. 40-page catalog No. 15 describes and illustrates industrial thermometers, psychrometers, thermoregulators, mercury-plunger relays.

T16 **TACHOMETER**—James G Biddle Co, 1316 Arch St, Philadelphia 7, Pa. Bulletin No. 31-35 features the new Miniature Frahm resonant-reed tachometer. Ranges and prices are included.

T18 **INDICATING AND RECORDING THERMOMETERS** — Electric Auto-Lite Co, Instrument & Gauge Div, Toledo 1, Ohio. Folder discusses Auto-Lite indicating and recording thermometers. Also contains descriptions and specifications for five different types of thermometers, as well as bulbs and fittings.

T19 **FURNACE INDICATOR**—Ess Instrument Co, 96 S Washington Ave, Bergenfield, N. J. Single-sheet No. 141-B tells about Cat's Eye furnace indicator that comprises a Pyrex hemispherical lens, which reflects flame characteristics. Several models are diagrammed.

T20 **CO_2 ANALYZER**—Charles Engelhard Inc, 850 Passaic Ave, East Newark, N. J. 4-page leaflet No. 710 stresses importance of efficient furnace combustion and explains the way Engelhard CO_2 analyzer measures CO_2 content of flue gas to help keep air supply at an optimum level.

T23 **PYROMETER INDICATORS** — Thermo Electric Co, Inc, Fair Lawn, N. J. 4-page folder No. 25 describes the company's multiple-point pyrometer indicators. Dimensional drawings and prices are given.

T24 **SURFACE PYROMETERS**—Pyrometer Instrument Co Inc, Bergenfield, N. J. Catalog No. 180 presents informative data on the new Pyro surface pyrometer, a completely self-contained, portable, compact and quick-acting instrument.

T25 **COMPENSATING FLOWMETER** —Hagan Corp, Hagan Bldg, Pittsburgh 30, Pa. 4-page folder No. M-51 explains how automatic compensation for pressure or temperature variations, or for both, are achieved in flow measurement of gases, liquids or other fluids with the Hagan compensated Ring-Balance meters.

T26 **FLOW GAGE**—Fischer & Porter Co, Hatboro, Pa. 4-page catalog No. 96 presents completely redesigned Magna-Sight flow gage, a simple, low-cost flow-rate indicator for coolants, lubricants, opaque liquids, slurries and other fluids. Design, operation and installation data are given.

T32 **FLOWMETERS** — Fischer & Porter Co, 82 County Line Rd, Hatboro, Pa. 12-page bulletin No. 83 describes the firm's new Ratosleeve flowmeters suitable for liquids gases, pulps and slurries. Advantages, specifications, dimensions and illustrations are given.

T33 **PNEUMATIC OPERATORS** — Conoflow Corp, 2100 Arch St, Philadelphia 3, Pa. 8-page technical booklet No. 104 covers design, operation and application of pneumatic operators for throttling control service.

T34 **STRIP-CHART RECORDER** — Wheelco Instruments Co, 847 W Harrison St, Chicago 7, Ill. Supplement to bulletin C2-1 features the Wheelco pneumatic Capacilog, air-operated strip-chart recorder. Data sheet outlines operation and applications.

T35 **CHRONOSCOPE** — American Chronoscope Corp, 316 W First St, Mt. Vernon, N. Y. 4-page folder illustrates and describes the company's electronic-mechanical Chronoscopes, input adapters and photoelectric adapters for measuring significant operating times from 10 microseconds to 3 seconds.

T37 **THERMOMETERS**—8-page folder, No. 16-C-30, furnishes complete specifications for 80 different commercial thermometers for a wide variety of temperature measurements including refrigeration line, steam, air-duct, diesel engine and general testing. Retail price list is given. H-B Instrument Co, 2633 Trenton Ave, Philadelphia 25, Pa.

PIPING, FITTINGS, VALVES AND SPECIALTIES

U1 UNIT FABRICATION—Crane Co, 836 S Michigan Ave, Chicago 5, Ill. 4-page folder, entitled "Unit Fabrication," presents advantages and economies of factory unit-fabrication of welded piping headers, assemblies and valve groupings into one-piece pretested units. Plant facilities are discussed; sample unit-fabrications are shown and analyzed.

All literature designated with a star (★) may be obtained only by writing direct to the manufacturer on company letterhead, giving writer's name and title.

★ EXPANSION JOINT DESIGN GUIDE — Chicago Metal Hose Corp, Maywood, Ill. 28-page booklet, entitled "Design Guide to Expansion Joint Selection and Application," is written in nontechnical language and contains numerous illustrations, charts and tables prepared for the purpose of simplifying the selection and application of expansion joints in piping systems.

U2 AIR VALVES—Gerotor May Corp, Baltimore 3, Md. 20-page catalog Section 301 illustrates the 21 different models that make up the complete line of Gerotor 4-way air valves. Description of each model valve includes working drawings, specifications for sizes, and cut-away views. Circuit layouts for important types of control show arrangement of all necessary air equipment with description of complete sequence of operation.

U3 DIAPHRAGM CONTROL VALVES — Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa. 31-page bulletin No. 700-1 contains informative data on the Belfield series 700 diaphragm control valves. Mechanical and flow characteristics of air-operated diaphragm motor-controlled valves are featured, as well as the standard and special control applications for diverse operating conditions.

U4 STRAINERS — Elliott Co, Accessories Dept, Jeannette, Pa. Bulletin No. A-13 explains and illustrates Elliott's new line of twin strainers. These strainers are built in sizes up to 24 in. for removing foreign matter from water, oil, and other liquids at pressures up to 125 and 250 psi.

U5 STEAM TRAPS — Armstrong Machine Works, Three Rivers, Mich. 8-page brochure No. 193 tells about correct application of steam traps on laundry and dry-cleaning equipment. Recommendations for the correct sizes of Armstrong traps for most of the widely used makes of steam-heated equipment in laundry and dry-cleaning services are given. Tables include the effect of air on steam temperatures and the high cost of steam leaks.

U6 HAND-CONTROL VALVES—Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa. 20-page booklet No. 242-1 gives complete descriptions of the Hi-Lift V-Port indicating-type hand-control valves. Details of construction, general features, applications and dimension charts are included.

U7 REGULATING VALVES — Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa. 24-page catalog No. 47-1 contains information on the operating principle of the Belfield single seat pilot balanced regulating valves, Type FB. Included is a page of circumferences and areas of circles and flange dimension charts.

U8 GLOBE AND ANGLE VALVES —Kennedy Valve Mfg Co, Elmira, N. Y. Circular No. 101 describes Kennedy bronze globe and angle valves with renewable composition discs. A table of available sizes and dimensions is also given.

U9 FUEL FIRING VALVES — Coen Co, 40 Boardman Pl, San Francisco 3, Calif. Bulletin No. 40-1 presents performance characteristics, mechanical and material features of Coen AC (adjustable characteristic) fuel firing valves.

U10 REGULATING AND FLOAT VALVES — Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa. 24-page booklet No. 10-1 furnishes descriptive photographs, prices and dimension charts for various types of Belfield regulating valves for water, steam, air, gas or oil, and float valves.

U11 BYPASS AND CONTROL VALVE — Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa. 4-page folder No. 254-1 discusses operation and construction of Schaefer bypass for traps, valves and other pressure units, as well as the union bonnet type for general marine service. 4-page folder No. 350-1 offers dimensions and operating data on Belfield "on-off" air-operated diaphragm-control valve.

U12 GAGE AND VALVE SETS—Jerguson Gage & Valve Co, 80 Fellsway, Somerville 45, Mass. Single-sheet No. 118 presents diagrams of various combinations of Jerguson gage and valve sets.

U13 SLEEVE VALVE—Coen Co, 40 Boardman Pl, San Francisco 3, Calif. Bulletin No. 90 cites advantages and construction of the Coen sleeve valve. Water-flow chart is included.

U14 COCKS — Minneapolis-Honeywell Regulator Co, Industrial Div, Philadelphia 44, Pa. 24-page booklet No. 100-1 covers the Belfield line of extra-grade cocks. Illustrations, sectional drawings and descriptions are given.

U15 GAGES AND VALVES—Jerguson Gage & Valve Co, 80 Fellsway, Somerville 45, Mass. 4-page folder No. 119 consists of optional features and accessories for Jerguson gages and valves.

U16 DUPLEX STRAINER—Coen Co, 40 Boardman Pl, San Francisco 3, Calif. Bulletin No. 28 describes the Coen safety strainer for high-pressure, high-temperature service.

U17 TUBE FITTING CHART—Parker Appliance Co, 17325 Euclid Ave, Cleveland 12, Ohio. An 8½x11-in. display card conveniently lists nomenclature for 14 tube fittings shapes and five fittings parts. Shapes are illustrated and described.

U18 SWIVEL JOINTS — Chiksan Co, Brea, Calif. 4-page folder is replete with dimensions, component parts and price list of several styles of Chiksan ball-bearing high-temperature swivel joints.

U19 SAFETY HEADS, CHEMICAL FEEDERS AND VENT VALVES —Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo. 8-page booklet covers safety heads, safety-head flanges, safety-head rupture disks and relief valves, automatic chemical feeders, and pressure vacuum vent valves. Charts give capacities, ratings and specifications.

U20 LIGHT-WEIGHT PIPE—Taylor Forge & Pipe Works, P O Box 485, Chicago 90, Ill. 4-page bulletin No. 493 shows sizes and wall thicknesses available for Taylor Spiral-Weld Pipe as well as fittings and flanges intended for use with this pipe.

U21 CAST-STEEL VALVES—Lukenheimer Co, P O Box 360, Annex Station, Cincinnati 14, Ohio. 12-page circular No. 552 illustrates construction features of a steel valve design that prevents bonnet joint leakage on high-pressure, high-temperature installations.

U22 FLEXIBLE METAL HOSE—Atlantic Metal Hose Co, 123 W 64th St, New York 23, N. Y. Brochure No. 100 gives information relating to new uses for existing types of flexible metal hose; and development of new types of hose to meet problems encountered by Atlantic's engineering dept. Test tables, installation methods and applications are included.

U23 TUBE FITTINGS—Parker Appliance Co, 17325 Euclid Ave, Cleveland 12, Ohio. 60-page catalog No. 203 presents design, specifications, materials and general dimensional data for each of four types of Parker fittings for hydraulic and fluid-handling systems.

U24 ROTATING JOINTS — Chiksan Co, Brea, Calif. 4-page leaflet discusses Chiksan ball-bearing, high-temperature rotating points. Photos, diagrams and tables are given.

U31 GATES VALVE—Crane Co, 836 S Michigan Ave, Chicago 5, Ill. 4-page folder explains the new Crane fluid-motor-operated gate valves. Cross-section views are shown.

U32 PIPELINE STRAINERS—Yarnall-Waring Co, Mermaid Lane, Philadelphia 18, Pa. 4-page bulletin No. S-202 is a revised publication on Yarway strainers. Pressure and screen data tables are given.

U34 INSTRUMENT VALVES — Edward Valves, Inc, East Chicago, Ind. 4-page leaflet No. 491 contains dimensions, weights, prices and operating data on new drop-forged-steel Edward instrument valves for meter, gage, instrument and other small lines.

U35 GATE VALVES—Kennedy Valve Mfg Co, Elmira, N. Y. Circular No. 120 gives an informative description of the Figure 27 and Figure 30 line of standard bronze gate valves. Design features are explained in detail with a large sectional drawing of a valve providing easy visual reference.

U36 VENTURI-BALL VALVES—Paul Valve Corp, 683 Third Ave, New York 17, N. Y. 16-page catalog No. 103 covers principles of operation and engineering data on the complete line of Paul high-performance venturi-ball valves, including "whistle," bar-stock, cast-steel, stainless-steel, and forged valves.

U37 STOP-CHECK VALVES—Crane Co, 836 S Michigan Ave, Chicago 5, Ill. 4-page folder tells about Crane automatic stop-check valves in sizes and types for all boiler pressures. List prices are given.

U38 AUTOMATIC VALVE SPECIALTIES—Davis Regulator Co, 2541 S Washtenau Ave, Chicago, Ill. 72-page catalog No. A-50 contains informative data and price lists on Davis valve specialties including pressure regulators; altitude valve; pump governors; lever, float and motor-operated valves; pilot, backpressure, relief non-return and solenoid valves; steam trap and air vent; and liquid-level controllers.

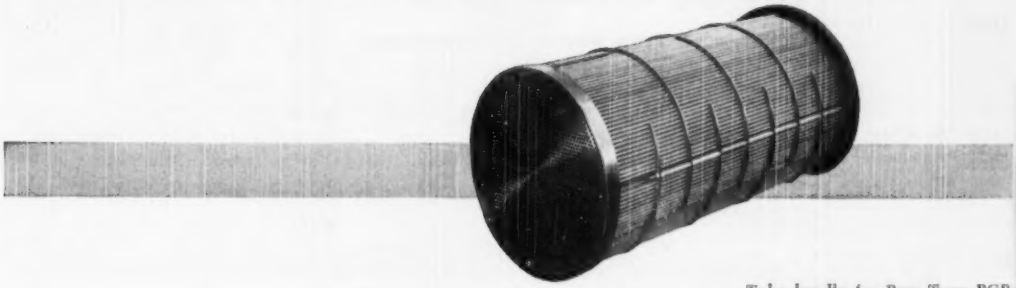
U39 MOISTURE SEPARATORS — Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio. 12-page bulletin S-14-C covers the company's complete line of separators for removing unwanted elements from steam, air and other vapors. Photographs, specifications, selection and ordering data are given.

U40 STOP VALVES—Edward Valves Inc, East Chicago, Ind. 4-page folder No. 501 describes in detail the new Edward Fig. 444 series forged-steel globe and angle stop valves, which can be had with either bolted or union bonnets, and with either screwed or socket welding ends. Also gives list prices.

U43 FLUSH VALVES — Coyne & Delany Co, 834 Kent Ave, Brooklyn 5, N. Y. 36-page catalog No. 49 outlines clearly the wide application of Delany flush valves for every ordinary and special installation. Also contains installation data, piping design and data, piping data tables and descriptions of various types of Delany valves.

Continued on page 196

What technical service can Anaconda give you on Condensers and Heat Exchangers?



Tube bundle for Ross Type BCP Heat Exchanger. Contains 2,082 ANACONDA *Arsenical Admiralty Metal Tubes. Tube Sheets are* ANACONDA *Muntz Metal. Baffle plates, tie rods and spacers are* ANACONDA *Brass.*

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HEAT EXCHANGER TUBES

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★ **SAFETY VALVES**—Marine & Industrial Products Co, 3731-35 Filbert St, Philadelphia 4, Pa. 12-page folder No. 250 contains test data and charts together with capacity tables of various models of MIPCO safety valves.

U44 PUMP VALVE — Sims Pump Valve Co, Inc, 145 Hudson St, New York 13, N. Y. 4-page leaflet No. V-111 discusses the Sims inclined port rotating pump valve. Essential features are shown in a diagram drawing.

U45 VALVE - SIZING CHARTS — Fischer & Porter Co, Dept 7007, Hatboro, Pa. Single-sheet supplement No. 2, Catalog 70, consists of liquid and gas valve-sizing charts, covering the ranges of 0.02 to 10,000 gallons per minute and 1 to 100,000 pounds per hr, respectively.

U46 MECHANICAL TUBING — Babcock & Wilcox Tube Co, Beaver Falls, Pa. Bulletin No. TE-324 describes ways in which increased production, lower manufacturing costs and short cuts to improved design may be reached by taking advantage of an unusual service embracing the complete range of steel tubing available to industry.

U47 PISTON VALVES — Klingerit Inc, 16 Hudson St, New York 13, N. Y. 22-page booklet gives list prices, specifications, mechanical cross-sections, illustrations, and parts list of Strahman seatless piston valves.

U48 PACKLESS EXPANSION JOINTS—24-page booklet features Badger self-equalizing, directed flexing, and nonequalizing expansion joints. General instructions and specifications are included. Badger Mfg. Co, 230-260 Bent St, Cambridge 41, Mass.

U49 FITTINGS AND FLANGES — 88-page catalog, No. WF-1950 contains informative data on Grinnell seamless carbon-steel welding fittings and forged steel flanges. Also gives standard schedules with their specifications, list prices and sizes, dimensional tolerances, thread standards and threading practice, etc., for flanges; plus sizes and wall thicknesses of welding fittings stocked in other metals. Grinnell Co, Inc, Providence 1, R. I.

U50 CORRUGATED EXPANSION JOINTS—10-page folder, No. 63, furnishes installation instructions, dimensions, construction and function of Kopperman packless corrugated stainless-steel and copper expansion joints. Joseph Kopperman & Sons, 312-16 New St, Philadelphia 6, Pa.

U51 STEAM EQUIPMENT—12-page bulletin, No. G-1307, covers the Yarway line of steam-plant equipment including blowoff valves; water columns and gages; liquid-level indicators and recorders; expansion joints; steam traps; strainers and spray nozzles. Yarnall-Waring Co, Chestnut Hill, Philadelphia 18, Pa.

U52 RADIATOR VALVES AND TRAPS—16-page booklet, Section No. 10 & 11, consists of diagrams and dimensions of Marsh radiator valves and traps. Construction and operation details are explained. Marsh Heating Equip Co, Skokie, Ill.

U53 SAFETY HEADS—16-page folder, entitled "BS&B Safety Head Price List," contains sizes, ratings, specifications, and prices of BS&B's safety heads and accessories. Black, Sivalls & Bryson inc, 720 Delaware, Kansas City 6, Mo.

U54 REGULATING VALVES — 12-page bulletin, No. S-22-C, covers the company's complete line of low-pressure regulating valves for controlling gases and liquids in level, temperature or pressure requirements. Swartwout Co, 18511 Euclid Ave, Cleveland 12, Ohio.

U55 PIPE COUPLINGS—Catalog No. 50 describes the company's line of high- and low-pressure All-Flex ball bearing swivel pipe couplings. There are 8 basic styles in sizes from ⅜-12 in. and for pressures from vacuum to 12,000 psi. Gil-Lair Products Inc, 81 Masonic Court, Pasadena, Calif.

U56 STEAM TRAPS—2 bulletins are offered. No. 100 discusses special features of Sarco thermostatic steam traps—single bellows for all sizes, no seats to change for different pressures, etc. No. 130 tells about inverted-bucket steam taps. Sarco Co, Inc. Empire State Bldg, New York 1, N. Y.

For copies of catalogs use cards, page 203

PRIME MOVERS AND ACCESSORIES

V1 JACKET-WATER COOLERS — Young Radiator Co, Racine, Wis. 16-page catalog No. 1349 covers complete line of Young jacket-water coolers for gas-, gasoline-, and diesel-engine cooling.

V2 STANDBY POWER PLANTS—Kato Engrg Co, Mankato, Minn. Form No. 449-SB features the Katolight air-cooled power plants designed for standby or emergency service.

V3 DUAL-FUEL ENGINE—Worthington Pump & Machy Corp, Publications Dept, Harrison, N. J. 16-page bulletin No. S500-B45 introduces new improvements on Worthington dual-fuel diesels. Dual-plunger fuel pump and automatic thermal air control, now standard equipment on these diesels, are fully described and illustrated.

V4 ENGINE-GENERATOR SETS—International Diesel Electric Co, 13-02 44th Ave, Long Island City 1, N. Y. 4-page folder No. 112 covers the company's line of diesel and gasoline engine-generator sets designed for emergency or continuous service. Sets range from 5 kw to 250 kw.

V5 DIESEL PUMP—Caterpillar Tractor Co, Peoria 8, Ill. 12-page folder No. 12484 contains general information on how various jobs in the mining, irrigation, dredging, and water-supply fields have been solved by the installation of diesel power.

V6 MULTISTAGE TURBINES — De Laval Steam Turbine Co, Trenton 2, N. J. 24-page catalog No. 4200 covers De Laval multistage turbines. Catalog points out flexibility of turbine drive, and also shows basic types of the firm's turbines for different operating conditions and applications up to 20,000 hp.

V7 PUBLIC UTILITIES EQUIPMENT —Caterpillar Tractor Co, Peoria 8, Ill. 8-page form No. 12438 describes the varied applications of equipment and engines in the field of public service.

V8 DIESEL ENGINE—Nordberg Mfg Co, 3073 S Chase Ave, Milwaukee 7, Wis. Series of four bulletins No. 166, 167, 167-A and 168 describe the new Nordberg Model 4FS-1 diesel engine, a one-cylinder, 4½x5¼-in. unit rated at 15 hp at 1800 rpm, and 10 hp at 1200 rpm.

V9 INDUSTRIAL DIESELS — Cummins Engine Co, Inc, Columbus, Ind. Two booklets No. 5287 and No. 5289 contain complete specifications of all automotive and industrial models of HR-600 and HRS-600 Cummins four-cycle, six-cylinder diesels.

V10 RADIAL ENGINE — Nordberg Mfg Co, 3073 S Chase Ave, Milwaukee 7, Wis. 8-page folder No. 172 features the new Nordberg two-cycle, 11-cylinder, 14x16-in, radial engine, which develops 1800 hp at 400 rpm, or 1250 kw. A cross-section view of the entire engine and of the pressure system of lubrication and piston cooling is also shown.

V11 STANDARDIZED DIESEL ENGINES — American Locomotive Co. Stationary & Marine Diesel Engine Div, Auburn, N. Y. 8-page bulletin, entitled "Alco Standardized Diesel Engine," illustrates construction of these standardized engines. Specifications and a list of features are included.

V12 DIESEL ENGINES — Superior Engine Div, National Supply Co, Springfield, Ohio. 20-page booklet No. 4812 describes Superior diesel engines for stationary installations. Included are more than 100 specifications showing a range in power from the naturally aspirated, 6-cylinder, 175-hp engine with 8½ x 10½-in. bore and stroke, to a supercharged, 8-cylinder, 1500-hp engine with 14½ x 20-in. bore and stroke.

V13 DIESEL ENGINES — Cummins Engine Co, Columbus, Ind. Two bulletins, No. 5285 (NHS-600) and No. 5290 (NHRS-600), contain complete specifications for automotive and industrial models of two supercharged, 6-cylinder Cummins diesels, the 275-hp (maximum) NHS engine and the 300-hp (maximum) NHRS engine.

V14 STEAM CONDENSERS — Condenser Service & Engrg Co, 95 River St, Hoboken, N. J. 28-page catalog No. 441-C gives informative data on Conseco condensers. Illustrations show installations of various models. A pressure-temperature conversion table is also included.

V15 HIGH-SPEED DIESELS — Cummins Engine Co, Columbus, Ind. Booklet No. 5218C describes 68 high-speed diesels for automotive, industrial and marine applications, covering the entire power range from 50 to 550 hp, and three medium-speed diesels. Each engine is pictured with a listing of standard equipment and notations on optional equipment that can be supplied.

V21 DIESEL ENGINES — Worthington Pump & Machy Corp, Engine Sales Div, P O Box 953, Buffalo 5, N. Y. 4-page publication No. S-500-B-1-500 permits quick determination of lowest power costs by visual inspection. Information is imparted by a family of curves covering gas cost per 1000 cu ft. for dual fuel and gas diesel, as well as spark ignition gas; and oil cost per gallon for oil diesel.

V22 SINGLE-STAGE TURBINE — De Laval Steam Turbine Co, Trenton 2, N. J. 4-page folder No. 4215 contains complete description and specifications of a new single-stage mechanical drive De Laval CP turbine suitable for pressures to 1450 psig, initial temperatures to 950 FTT and back pressures to 300 psig.

PUMPS

W1 VERTICAL TURBINE PUMPS—Worthington Pump & Machy Corp, Harrison, N. J. Bulletin No. H-450-B34 describes the water-lubricated Type Q vertical turbine pump—sizes 6 to 14 in. Pump sizes and capacities, standard specification, as well as a cutaway view of a typical section of a Type Q pump, are given.

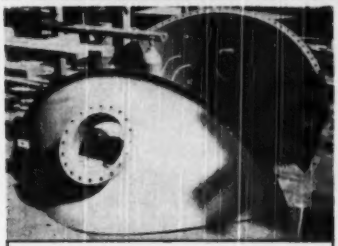
W2 HIGH-VACUUM PUMPS—Central Scientific Co, 1700 Irving Park Rd, Chicago 13, Ill. 48-page brochure No. 10A contains technical information and descriptive data on high-vacuum pumps and accessory apparatus, systems, connections, pumping speeds, etc. Also tells about the new Pressovac pump for pumping to 25 microns and the Cenco-Hypervac 23 pump, a fast-pumping unit for pressures to 5 microns.

W3 CENTRIFUGAL PUMPS—Worthington Pump & Machy Corp, Harrison, N. J. 4-page folder No. W-395-B1 covers self-priming centrifugal pumps. Specifications, pumping unit and engine data, and illustrations of several models are included.

W4 CENTRIFUGAL PUMPS—Allis-Chalmers Mfg Co, 952 S 70th St, Milwaukee, Wis. 16-page handbook No. 08X6256A discusses how and why

REVERE NON-FERROUS METALS USED IN GAS CONDENSER

Operating Efficiency Increased — Space Saved



THERE'S A LONG LIFE OF rugged service ahead for this three-pass gas condenser. Bottom water box shown here, as well as top water box, and baffles are made of that corrosion resistant silicon-bronze alloy—Herculoy, supplied by Revere.

SPACE SAVER—These 2" O.D. tubes measuring 22' long x .083" made it possible to erect a condenser 50' high. Fewer long tubes and fewer joints saved space, reduced labor costs. Former unit had a maximum height of only 12'. Covered much wider area.

WORM'S-EYE VIEW of gas condenser made by the Bartlett-Hayward Plant of the Koppers Company, Inc., Baltimore, Maryland, showing part of the hundreds of Arsenical Admiralty tubes supplied by Revere, fitted into place and expanded.

Under normal operating conditions, the tubes in a gas condenser are exposed to tars, moisture and other impurities from raw manufactured gas. In designing this condenser there was another consideration—brackish harbor water from an industrial area. Under these conditions a gas condenser of all steel construction wouldn't last very long. There was also another consideration—space which precluded use of the bulky cast iron condenser.

Engineers of the Bartlett Hayward Plant, Koppers Company, Incorporated got together with Revere's Technical Advisory Service and drew up specifications for materials of construction. The result was (1) A condenser shell of steel. (2) Tubes of Revere's Arsenical Admiralty metal which is inhibited to resist dezincification and also highly resistant to other forms of attack. (3) Bottom water box and top water box and baffle of Herculoy, the silicon-bronze alloy that has the corrosion resistance of copper bronze, plus the strength of mild steel. (4) Tube sheets of Naval Brass. All together nearly 40 tons of Revere non-ferrous materials.

Better heat transfer of the Admiralty tubes, and the use of longer tubes, resulted in a condenser which utilized more head room, lessened cost of installation and made possible a unit that took up less ground area.

Why don't you look into the possibility of using one of these Revere alloys or some other Revere alloy or metal in your condensers? Revere's Technical Advisory Service will be glad to work with your engineers on your problems. Just call the nearest Revere office today.

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COPPER AND BRASS INCORPORATED

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of pump construction and their effect on pump maintenance. It also tells how to figure head and carries tables to help determine friction loss. Causes and cures for various sources of troubles are also given.

W5 **VERTICAL TURBINE PUMPS** — Worthington Pump & Machy Corp, Harrison, N. J. Bulletin No. H-450-B35 illustrates the oil-lubricated Worthington Type Q vertical turbine pumps in sizes from 6 - 14 in. having capacities from 50 - 3000 gpm.

W6 **TURBINE PUMPS** — Johnston Pump Co, 2324 E 49th St, Los Angeles 11, Calif. 8-page folder No. 1013 tells about the Johnston oil-lubricated pumps. Diagram shows construction of these pumps.

W7 **SELF-PRIMING CENTRIFUGAL PUMPS**—Marlow Pumps, Ridgewood, N. J. 12-page brochure No. 1B49 describes the four main Marlow types—long coupled, close coupled, vertical and belt driven — that cover 26 basic series of Marlow self-priming centrifugal pumps.

W8 **PUMP SETS**—Coen Co, 40 Boardman Pl, San Francisco 3, Calif. 4-page bulletin No. 30 discusses fuel-oil, pumping, heating and straining pump sets. Photos, diagrams and tables are included.

W9 **WATER LUBRICATED PUMP**—Johnston Pump Co, 2324 E 49th St, Los Angeles 11, Calif. 8-page folder No. 1014 features the Johnston water-lubricated turbine pump. Text deals with the many applications for which they are designed.

W17 **CHEMICAL PROPORTIONING PUMPS** — Nelson Chemical Pumps, Box 2235, Casper, Wyo. 12-page bulletin consists of specifications, design and construction features of Nelson chemical proportioning pumps including self-propelled, synchronized and motorized drive.

W18 **SELF-PRIMING PUMP** — Duriron Co Inc, Dayton 1, Ohio. 4-page folder No. 816 features the new Model 40 Series R corrosion-resisting self-priming Durcopump.

W19 **CENTRIFUGAL PUMPS** — Goulds Pumps Inc, Seneca Falls, N. Y. 8-page brochure furnishes design features, performance curves and specifications on Goulds stainless-steel centrifugal pumps.

W22 **ROTARY PUMPS — De Laval** Steam Turbine Co, Trenton 2, N. J. 4-page catalog No. LG shows cutaway drawings of the six different types of De Laval-IMO rotary pumps, along with brief description of each. Capacities range from 0.5 to 1000 gpm for pressures to 500 psi, to 150 gpm for pressures to 1500 psi.

W23 **CENTRIFUGAL CHEMICAL PUMPS**—Worthington Pump & Machinery Corp, Harrison, N. J. 12-page publication No. W-350-B11 presents some of Worthington's centrifugal pumping equipment used in the chemical process industries. Complete explanation of Worthington Mechanical Seal specially designed to prevent leakage of corrosive liquids, and a description of Worthite, a corrosion-resistant metal, are given.

W24 **GAS PUMPS** — Roots-Connersville Blower Corp, Connersville, Ind. 8-page bulletin No. 31-B-17 covers the company's Type XA gas pumps which are used as boosters or exhausters in a wide range of industrial and other applications. Sectional views are included.

W25 **CENTRIFUGAL FIRE PUMPS** —Peerless Pump Div, Food Machinery & Chemical Corp, 301 West Ave 26, Los Angeles 31, Calif. 24-page catalog No. B-1500 gives informative data on both single- and two-stage centrifugal fire pumps and their methods of drive and application.

W26 **SELF - PRIMING CENTRIFUGAL PUMP**—La Bour Co Inc, Elkhart, Ind. 16-page booklet No. 53 discusses La Bour Type G vertical, self-priming centrifugal pump. Operating information and instruction for installation and care of these pumps is included.

W27 **PUMP CONTROL**—Cutler-Hammer Inc, 294 N 12th St, Milwaukee 1, Wis. Bulletin No. 9589 D-21 describes Cutler-Hammer oil well pumping control, designed for across-the-line starting of squirrel cage motors.

W34 **CENTRIFUGAL PUMPS** — Pacific Pumps Inc, 5715 Bicket St, Huntington Park, Cal. 16-page brochure No. 109 explains design and construction of Pacific centrifugal pumps for boiler feed service. Cross-sectional views and illustrations of typical installations are included.

W35 **SUMP PUMPS**—Penberthy Injector Co, 1242 Holden Ave, Detroit 2, Mich. Single-sheet form No. 4929 shows the Penberthy explosion proof and totally enclosed automatic electric sump pump. Retail prices, sizes, pipe connections, capacities, etc, are listed.

W36 **DUAL VANE PUMPS** — Dudco Products Co, 1796 E Nine Mile Rd, Hazel Park, Mich. Broadside features Dudco "E" Series of dual vane pump for users of smaller hp drives.

W37 **JET PUMP** — Penberthy Injector Co, 1242 Holden Ave, Detroit 2, Mich. 4-page folder No. 5030 cites performance, specifications and uses of Penberthy cycling jet pump operated by air, gas or steam pressure.

W38 **PROCESS PUMPS**—4-page folder, No. 1125, discusses the new line of De Laval Type CP process pumps designed for handling hot or cold clear liquids, viscous liquids, corrosive liquids or liquids carrying suspended solids. Vane characteristics and material of construction can be selected to suit requirements. De Laval Steam Turbine Co, Trenton 2, N. J.

WATER TREATMENT

X1 **STEAM AND CONDENSATE PURITY INDICATOR**—E F Drew & Co Inc, Power Chemicals Div, 15 E 26th St, New York 10, N. Y. 6-page bulletin No. 11-23-48 RCU discusses various probems encountered with steam and condensate purity. Typical test apparatus and equipment available are listed and discussed.

X2 **ANTI-FOAM TREATMENT**—Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill. 4-page leaflet No. 5008 covers the new polyamide anti-foam treatment No. 659. Illustrations of research developments and data on application are also included.

X3 **CHLORINIZER** — Builders-Providence Inc, 14 Codding St, Providence 1, R. I. Bulletin No. 840-F3T presents the gravimetric chlorinizer, Model CGS, which meters and feeds gaseous chlorine by the loss-in-weight principle.

X4 **WATER ANALYSES**—W H & L D Betz, Gillingham and Worth Sts, Philadelphia 24, Pa. 16-page booklet, entitled "Testing and Control Equipment for Water Analyses," illustrates and describes a complete line of apparatus and test sets especially designed for industrial water testing.

X5 **FEEDWATER TREATMENT**—E F Drew & Co Inc, 15 E 26th St, New York 10, N. Y. 4-page technical bulletin discusses anti-precipitating agents for prevention of scale, deposits and corrosion in cooling-water systems, service-water lines, heat exchangers and other process equipment.

X6 **SEWAGE TREATMENT** — American Well Works, Aurora, Ill. 24-page manual No. 149 graphically illustrates and describes American processes and equipment for sewage and industrial-waste treatment.

X7 **COMPRESSION DISTILLATION** — Arthur D Little Inc, 30 Memorial Drive, Cambridge 42, Mass. 4-page folder explains the principles of compression distillation and its present industrial applications. Distinctive features are listed.

X15 **CHEMICAL CONTROL** — Dearborn Chemical Co, 310 S Michigan Ave, Chicago 4, Ill. 24-page booklet No. 5000 covers the principles and fundamentals of providing trouble-free water in boiler plant operation, for prevention of scale, pitting and general corrosion, for producing pure, dry steam and to avoid caustic embrittlement.

X16 **WATER SOFTENERS** — Graver Water Conditioning Co, Dept 103, 216 W 14th St, New York 11, N. Y. 36-page catalog No. WC-102 explains boiler plant troubles caused by various impurities in water, outlines 12 different methods of treating water to eliminate these impurities, and explains chemistry of hot-process water softening and its advantages.

X17 **CHEMICAL FEEDERS** — Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo. 16-page bulletin, entitled "Automatic Chemical Feeders," presents operation, special features, and standard specifications of BS&B automatic chemical feeders.

X19 **WATER SOFTENER** — 12-page booklet, No. WC103, graphically describes design, operation and features of the Graver Reactivator used for water clarification and cold process water treatment. Various accessories are also described. Graver Water Conditioning Co, Dept 103, 216 W 14th St, New York 11, N. Y.

X20 **CIRCULAR COLLECTORS** — 16-page pamphlet, No. 4906, gives informative data on 3 different types of Carter circular collectors for clarification and sludge collection used in sewage treatment, industrial - waste treatment or water purification. Ralph B Carter Co, Atlantic St, Hackensack, N. J.

WELDING

Y1 **WELDING SUPPLIES** — Lincoln Electric Co, 12818 Coit Rd, Cleveland 1, Ohio. 8-page catalog No. 467 is a directory of Lincoln's line of welding supplies. A list of aids for design and production is also given.

Y2 **BRAZING MATERIALS**—Handy & Harman, 32 Fulton St, New York 7, N. Y. 4-page leaflet discusses Sil-Fos, a low-temperature self-fluxing, silver alloy, and Easy-Flo, 45 gage, silver-alloy brazing rings.

Y3 **CASTINGS REPAIR** — Air Reduction Sales Co, 60 E 42nd St, New York 17, N. Y. Reprint, entitled 'Repairing Gray Iron Castings by Welding," offers practical case histories covering the repair and maintenance by welding of cast parts.

Y4 **WELDING GUIDE**—Lincoln Electric Co, 12818 Coit Rd, Cleveland 1, Ohio. 20-page booklet No. 462 is a guide for selection of electrodes. Also relates welding techniques for mild steel and low-alloy high-tensile steels.

Y5 **TORCH OUTFIT**—Torch Div, Industrial Engineered Products Co, 7416 Melrose Ave, Los Angeles 46, Calif. 6-page catalog No. 88 and folder describe the Torchmaster torch outfit and its accessories.

Y6 **ALLOY WELDING HINTS** — International Nickel Co Inc, 67 Wall St, New York 5, N. Y. 32-page technical bulletin T-2 relates all the different methods of welding, brazing and soft soldering monel, nickel, Inconel, and other alloys. Also contains many diagrams and technical data.

Y7 **ARC-WELDING ACCESSORIES** — General Electric Co, Schenectady 5, N. Y. 20-page booklet No. GEC-253A gives descriptions, specifications, and prices of more than 150 arc-welding accessories available from General Electric.

Power plant of Republic Aviation Corporation, Farmingdale, N. Y. Texaco Ursa Oil has lubricated one of these 300-h.p. Chicago Pneumatic Diesels for eight years, and the other for seven years.

"...ALL RINGS FREE" after 10,000 hours lubricated with TEXACO URSA OIL

When Republic Aviation Corporation's Diesels were overhauled after 10,000 hours of operation with *Texaco Ursa Oil,* Mr. Bob De Fau, Chief Stationary Engineer, reported as follows:

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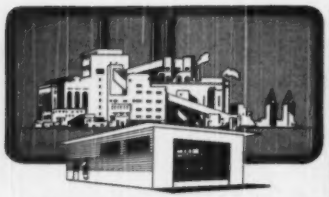

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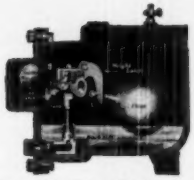
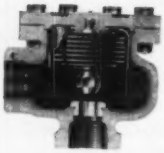


Advance-Type Drainage Methods are discussed in our Trap *Catalog 250*

A standard reference. 32 pages; complete with charts and formulae for determining proper trap sizes.



WEIGHT - OPERATED TRAPS — (above) Three types, for steam, air, gasoline. Pressures to 1500 lbs.

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Y8 **WELDING HOSE**—B F Goodrich Co, Akron, Ohio. Catalog section No. 4200 illustrates the company's Oxy-Acetylene and Duo-Weld hose. Construction data and specifications are given.

Y9 **METALLIZING GUN**—Wall Colmonoy Corp, 19345 John R St, Detroit 3, Mich. 4-page folder describes the Colmonoy Spraywelder, a powder metallizing gun, and the spraying of powdered Colmonoy No. 6, No. 5 and No. 4 alloys, as well as other powdered metals.

Y10 **SUBMERGED WELDING**—Linde Air Products Co, 30 E 42nd St. New York 17, N. Y. 36-page booklet, entitled "Unionmelt Apparatus Catalog," contains latest information on Unionmelt apparatus and supplies for submerged melt welding. Sections added include portable DS welding head, the shape-welding carriage, and the flexible welder.

Y11 **SOLDERING PRODUCTS** — P Wall Mfg Co, 411 Erie St, Grove City, Pa. 24-page catalog No. 85 presents the complete line of Wall soldering products. Items described are: gasoline and kerosene blow torches, self-generating alcohol blow torches, electric-soldering irons, solder, splicer's furnaces, paraffin supplies and compound kettles.

Y12 **LOW-HEAT WELDING**—Eutectic Welding Alloys Corp, 40 Worth St, New York 13, N. Y. 8-page 1950 directory of Eutectic products for low-heat welding of all metals. A complete selection chart is also included for information on numerous specialized Eutectic welding alloys for particular jobs.

OTHER EQUIPMENT

Z1 **PORTABLE ELECTRIC TOOLS**—Independent Pneumatic Tool Co, Aurora, Ill. 4-page bulletin, entitled "Silver Line Portable Electric Tools," presents the Thor line of portable power tools giving specifications, sizes and prices.

Z2 **GENERATORS**—Kato Engrg Co, 1415 First Ave, Mankato, Minn. Two forms are offered containing information on ac generators. Bulletin No. 3149 describes ac generators ranging in capacities of 5 kw to 175 kw at 60 cycles, speeds from 720 to 1800 rpm, and also gives weights and dimensions. Bulletin No. 21749 describes ac generators ranging in capacities of 150 kw to 300 kw, speeds from 720 to 1800 rpm.

Z3 **HEAT TREATMENT** — Cooley Electric Mfg Corp, 38 S Shelby St, Indianapolis 7, Ind. Publication, entitled "Shop Notes on Heat Treating of Steels," is written in a nontechnical manner for shops without trained metallurgists. It gives informative data on typical heat-treating procedures including heating, quenching, tempering, and atmosphere control. Tips for better heat treating and definitions of heat-treating terms are also given.

Z4 **PAGING SYSTEMS**—Autocall Co, Shelby, Ohio. Kit of information covering paging systems contains catalog pages of bells, chimes, whistles, horns, and various models of Autocall central sending stations. Reproductions of photographs taken under actual business conditions to illustrate the service in users' establishments and comparisons of cost, maintenance, etc, between various types of paging systems are also included.

Z5 **METAL FABRICATION** — L O Koven & Brother Inc, 154 Ogden Ave, Jersey City 7, N. J. 24-page booklet No. 490 illustrates by photographs and sketches the complete story of Koven's experience, knowledge and facilities in the field of metal fabrication.

Z6 **COMPRESSORS** — Worthington Pump & Machy Corp, Harrison, N. J. 16-page bulletin No. H-620-B30 contains informative data on Worthington air-cooled compressors and dry

Continued on page 202

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vacuum pumps. Each is fully illustrated complete with pressure, sizes and ratings.

Z7 HEAT EXCHANGER BAFFLE —Henry Vogt Machine Co, 1000 W Ormsby St, Louisville 10, Ky. 4-page pamphlet tells about the new Vogt positive-seal baffle for 2 shell-pass heat exchangers.

Z8 HIGH-RATE WATER-TREATING PLANT — Infilco Inc, 325 W 25th Pl, Chicago 16, Ill. 28-page book No. 1825, gives a comprehensive story of the development of the Accelator. It explains its principle, distinguishing characteristics, advantages, design considerations, operation and applications.

Z9 GAGE TESTER—Star Brass Div, Williams & Hussey Machine Co, Wilton, N. H. 4-page brochure describes and illustrates the Star combination deadweight gage tester. Construction details and operating instructions are included.

Z10 CAPACITOR INFORMATION — General Electric Co, Apparatus Dept, Schenectady, N. Y. A wallet-size-card No. GEN-22 contains rules of thumb for quickly computing the answers to the questions: How many kilovars; what power factor; how much voltage rise? Simplified diagrams illustrate the formula.

Z11 PORTABLE MULTI - CIRCUIT PYROMETER—Illinois Testing Laboratories Inc, 420 N LaSalle St, Chicago 10, Ill. Single-sheet gives information on the company's Alnor Type 1200 portable multi-circuit pyrometer. Price list is included.

Z12 VERTICAL TUBULAR HEATER —Foster Wheeler Corp, 165 Broadway, New York 6, N. Y. 4-page bulletin No. 0-49-7 gives complete description of Foster Wheeler simplified vertical tubular heater, which features the use of bare tubes and the absence of any metal parts exposed to furnace gases.

Z13 ABRASIVE-RESISTANT METAL —Electro-Alloys Div. American Brake Shoe Co, Elyria, Ohio. 6-page broadside, entitled "How to Reduce Abrasive Wear with Thermalloy HC-250," discusses the physical properties of Thermalloy HC-250, listing the many uses and advantages of this abrasive-resistant metal.

Z14 PHOTOELECTRIC CELLS — International Rectifier Corp, 6809 S Victoria Ave, Los Angeles 43, Calif. 4-page bulletin No. PC-649 furnishes diagrams, curves, construction details, performance characteristics and applications of selenium self-generating photoelectric cells. Price list is included.

Z15 WATER CONDITIONING—Elgin Softener Corp, Elgin, Ill. 20-page booklet No. 610 tells the water-conditioning story—where it may be used profitably and why. Also contains up-to-date information on design and application of water-conditioning equipment.

Z16 FIELD SERVICE UNIT—Davey Compressor Co, Kent, Ohio. Single-sheet No. E-232 features Davey's new truck-mounted field service unit, Type PW-308. A floor plan shows location of welder, generator, compressor, power-lubrication equipment and supplementary items.

Z17 MULTI-JET CONDENSERS — Schutte & Koerting Co, 12th & Thompson St, Philadelphia 22, Pa. 12-page booklet No. 5-A covers SK low-level multi-jet condensers. Sizes, capacities, over-all dimensions and weights, as well as properties of saturated steam are included in tabular form.

Z18 CORROSION-RESISTING ALLOYS AND EQUIPMENT—Duriron Co, Dayton 1, Ohio. 12-page general catalog M condenses data published in 54 separate bulletins on corrosive-resisting equipment and alloys.

Z19 TELEMETERING SYSTEMS — General Electric Co, Schenectady

Continued on page 204

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To get copies of the catalogs and bulletins described in this section, write the number, as it appears in front of the item, in the spaces below, fill in your name, address, company, and title, then drop the cards in the mail. There's no postage required!

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Continued from page 202

5, N. Y. 36-page bulletin No. GEA-4221 features newest GE telemetering equipment for electric-power distribution and industrial applications. Detailed information on the frequency-, torque-balance-, and photoelectric-type telemeters is also given.

Z20 **WELDING RODS AND ELECTRODES**—American Brake Shoe Co, 230 Park Ave, New York 17, N. Y. 4-page folder No. CC-3 is a selector and comparison chart that lists Amsco's welding rods and electrodes and indicates the type of service for which each is designed.

Z21 **PIPE AND CONDUIT MARKERS** —W H Brady Co, Dept 33, 315 N Third St, Milwaukee 3, Wis. Bulletin No. 144 describes and illustrates new self-adhesive Quick-Label pipe marker for identifying small-diameter pipe and conduit from ¼-2 in. diameter. Other sizes of markers for large pipe and conduit are also included.

Z22 **STEEL PRODUCTS**—Black, Sivalls & Bryson, Inc, 720 Delaware, Kansas City 6, Mo. 20-page booklet, entitled "Products for the Chemical Industry," describes 12 different products of interest to the chemical industry. Also includes gas dehydrators, tubular heaters, indirect heaters, chemical feeders, gas scrubbers, wood and steel tanks, etc.

Z23 **REFINERY EQUIPMENT** — Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo. 36-page catalog, entitled "BS&B in the Refining Industry," features refinery products including information on BS&B heaters, separators, safety heads, relief valves, flame-arrestor combinations, fuel vaporizers, storage tanks, manifolds, etc.

Z24 **HEAT EXCHANGERS** — Ross Heater & Mfg Co, Inc, 1407-1411 West Ave, Buffalo 13, N. Y. 4-page folder No. 1-7E1 describes the new fully standardized series Type SSCF all-stainless steel heat exchangers. Line drawings and dimension tables are furnished.

Z25 **INSULATED PIPE**—Durant Insulated Pipe Co, 1015 Runnymede St, Palo Alto, Calif. 40-page book covers Durant pressealed insulated pipe for use in underground and exposed locations. Construction details and specifications are given.

Z26 **DISK WHEEL**—Raybestos-Manhattan, Inc, Manhattan Rubber Div, Abrasive Wheel Dept, Passaic, N. J. Bulletin No. 6901-A describes Manhattan Moldine, a bonded disk wheel for rotary sanders.

Z27 **INDUSTRIAL CLAMP** — Hunter Spring Co, 1 Spring Ave, Lansdale, Pa. 4-page folder No. 810-1C contains principles, characteristics, price list, and illustrated applications of the Negator industrial clamp.

Z28 **SCALE MODELS** — Raymond A Lester Associates, 39 E Prospect Ave, Mount Vernon, N. Y. 8-page brochure shows a few of the many uses for scale models in business and industry.

Z29 **MATERIALS TEST**—South Florida Test Service, 4201 N W 7th St, Miami 34, Fla. 4-page pamphlet explains the scope of service offered by the firm for testing durability and permanency of materials.

Z30 **NEW AND USED EQUIPMENT** —Charles Weaver, 4144 Penobscot Bldg, Detroit 26, Mich. Series of bulletins describing new and used equipment including steam turbines, turbine-generators, diesels, boilers, etc. Specifications are given.

Z31 **DUPLEX COMPRESSORS**—Pennsylvania Pump & Compressor Co, Easton, Pa. 24-page catalog No. 202 tells about Pennsylvania horizontal duplex heavy-duty compressors. Complete coverage is also given to the firm's air cushion valve.

Z32 **VOLTAGE REGULATORS**—Sorenson & Co Inc, 375 Fairfield Ave, Stamford, Conn. Two booklets cover new line of Sorenson electronic voltage regulators. Catalog No. A-1049 contains specifications and description of the standard ones for control of ac power. Catalog No. B-1049 lists and describes the line of dc power sources and supplies.

Z33 **TEMPERATURE REGULATORS** —Spence Engrg Co Inc, Walden, N. Y. 6-page pamphlet outlines construction and operation of Spence Type ETT100 temperature regulator, an external pilot, self-operated regulator.

Z34 **FINISHING CEMENT**—Baldwin-Hill Co, Trenton 2, N. J. 4-page broadside points out advantages and characteristics of Powerhouse cement, a finishing cement that insulates.

Z35 **SILENT CHAIN DRIVE**—Whitney Chain & Mfg Co, Hartford 2, Conn. Catalog on silent chain drive makes selection of silent chain and chain drives easy by using Whitney tables listed in it.

Z36 **MEGOHMMETER** — Herman H Sticht Co Inc, 27 Park Place, New York, N. Y. 4-page bulletin No. 1029 features Model 29 Twenty Million megohmmeter giving general description, principle of operation, and specification.

Z37 **LIQUID LEVEL METERS** — Fischer & Porter Co, 75 County Line Rd, Hatboro, Pa. 34-page booklet No. 75 describes the company's line of Levelimeter instruments for indicating, measuring, and controlling liquid level and inter-face level.

Z38 **QUICK-OPERATING VALVE** — Everlasting Valve Co, 49 Fisk St, Jersey City 5, N. J. 14-page catalog No. E-160 explains application of Everlasting quick-operating valves to blow-off service and on fire protection, chemical process, soot blower, water column blow-down, and other types of pipe lines.

Z39 **TESTING PROCEDURES** — Owens-Corning Fiberglas Corp, 16 E 56th St, New York 22, N. Y. 36-page publication, entitled "Testing Methods and Facilities Used on Fiberglas Products," tells about facilities and procedures employed by the company in its testing laboratories.

Z40 **TECHNICAL DATA** — Lefax, Philadelphia 7, Pa. Catalog furnishes complete information and list of 2000 subject titles on essential data for engineers and students, which has been prepared in pocket-sized binders.

Z41 **PIPE HALF SOLES**—Black, Sivalls & Bryson Inc, 720 Delaware, Kansas City 6, Mo. 4-page booklet No. 193 shows cutaway views of standard and crimped type pipe half sole. Table of specifications and prices is included.

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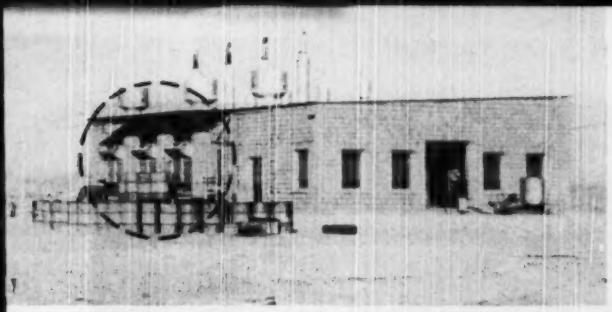

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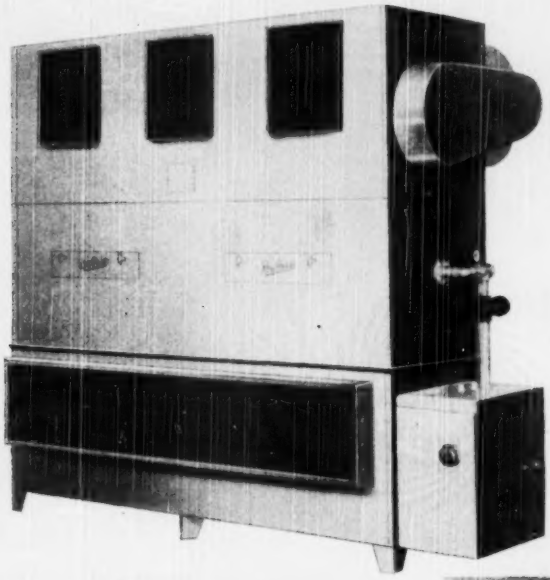

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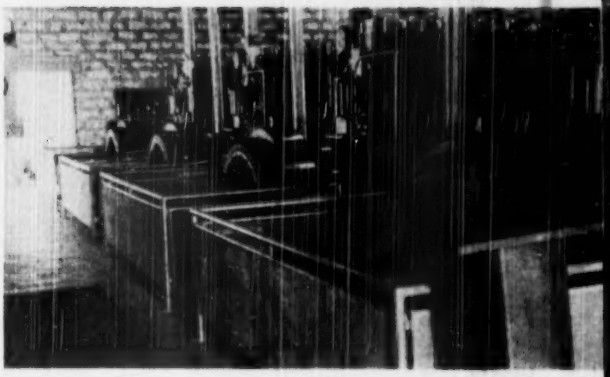
In this diesel power installation on the Arabian desert, diesel cooling conditions are at their worst. Desert heat and dust are plentiful. Water for the "Buffalo" Evaporative Coolers must be hauled in—yet they do an efficient cooling job. Here's proof that "Buffalo" Coolers will give you the dependable kind of service that keeps diesel performance at a peak—and SAVES WATER!



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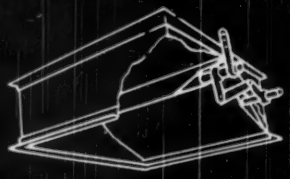

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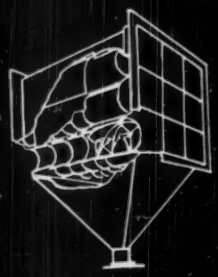

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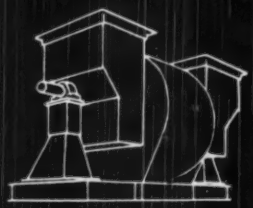

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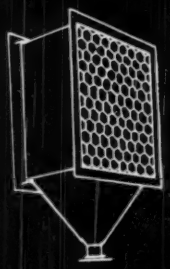

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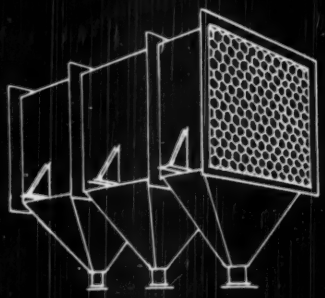

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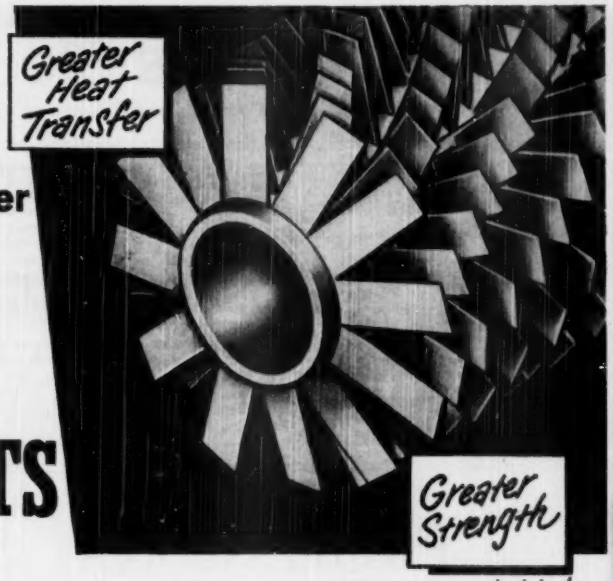

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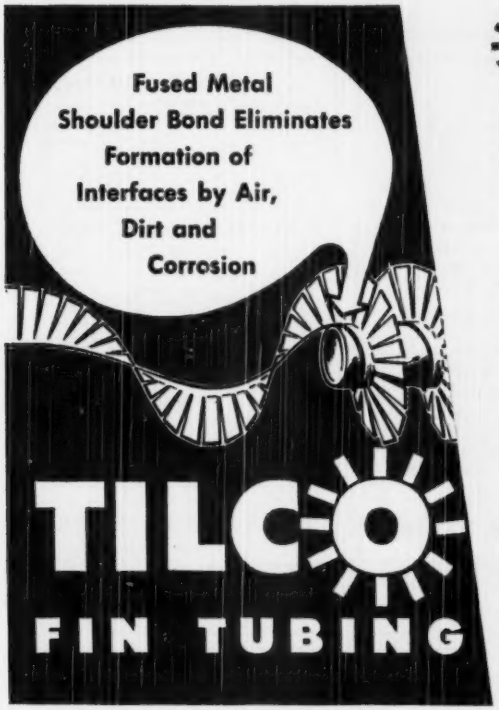

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One Year Guarantee.
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Three 200 K. W. GENERATORS G. E., 2300 v., 3 phase, 60 cy. with three 300 H.P. UNION DIESEL ENGINES, 6 cyl., 12" bore, 17" stroke, 277 R.P.M. *Factory rebuilt.*

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Air Compressors Wanted

Horizontal Water Cooled—Any size
also 2 Stage portable unit

L. W. BAUER
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WANTED

4000 KW Marine Generator, 33,000 Volt Transformers and insulators.

Circuit Breakers 7500 volts 100,000 KVA Interrupting capacity or greater—preferably enclosed in metal cabinets.

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One Union Iron Works Bent Water Tube Boiler 300 Horse Power, W. P. 160 Pounds With Detroit Stoker. One Economic Fire Tube Boiler 200 Horse Power, W. P. 200 Pounds. One Infilco Oil Filter. Size 40 Inch. No reasonable offer will be refused.

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SLIP-RING MOTORS

3 phase, 60 cycle—220 or 440 volt (*2200 volt or higher)

H.P.	Make	Type	Speed
2500	*G.E.	MT	257
2000	*G.E.	MT-36	240
1250	*G.E.	M	720
1200	*G.E.	MT-26	277
800	*Westg.	CW	507
650	Westg.	HF	360
500	Westg.	CW	360
500	Westg.	CW	450
400	G.E.	IE	1800
300	*G.E.	1E15A-4	1800
300	G.E.	IM-17	1200
250	Westg.	CW-32B	900
250	Westg.	CW	600
200	G.E.	IM	600
150	Al. Ch.	ANY	600
100	G.E. NEW	M63332	900
100	G.E. NEW	M6334	720
100	Westg.	CW-856C	600
100	G.E.	IM-15A	450
75	G.E.	IM-E-14	1800
75	Westg.	CI-756A	600
75	Cr. Wh.	25Q	600
75	G.E.	IM-14	514
60	*Westg.	CW-762C	900
50	G.E.	IM-11A	1800
50	Al. Ch.	ARY-220BS	1800

SQUIRREL CAGE MOTORS

3 phase, 60 cycle—220 or 440 volt (*2200 volt or higher)

H.P.	Make	Type	Speed
750	G.E.	KT	720
500	G.E.	KTP-567	1200
400	*Al. Ch.	ANW	900
300	G.E.	FT-559A	1800
250	Westg.	CS-956A	600
200	Reliance	AA-C6086S	1200
200	*G.E.	IE-15-K	600
150	Westg.	CS-771	1800
150	G.E.	IE-13AK	1800
150	G.E.	IE-13B	1200
150	G.E.	1-15-8	900
150	Westg.	CS-950A	600
125	G.E. TEFC	K-6326S	1200
125	G.E.	KT-558	900
100	U.S.-Vert.	CFU-994-A	1200
100	Burke	EM-12.5	1200
100	G.E.	K-6333	720
75	*Al. Ch.	AR-223BS	1800
75	Westg.	CS-505-S	1800
75	G.E.	FTR-543-6	1200
75	G.E.	KT-347	1200
75	*G.E. Vert.	CS	900
75	G.E.	I-10-K	720
75	G.E.	FT-556	720
75	Al. Ch.	AN	720

SYN. A. C. MOTORS

3 phase, 60 cycle—220 or 440 volt (*2300 volt or higher)

H.P.	Make	Type	P.F.	Speed
1000	*Westg.	SC-3D358	.8	900
700	*G.E.	ATI	.8	720
450	El. Ma.		1.0	240
320	*Al. Ch.	Dr. Prf.	1.0	720
250	*Al. Ch.		1.0	720
200	*Al. Ch.		1.0	360
150	G.E.	ATI	.8	600
125	G.E.	TS-954S	1.0	1200
100	Cr. Wh.	103-S	.8	900
100	G.E.	ATB	.8	900

A. C. GENERATORS

3 phase, 60 cycle—220 or 440 volt (*2300 volt or higher)

1000	*Westg.	S03D	.8	900
725	*G.E.	ATI	.8	720
250	*Al. Ch.		.8	720
156	G.E.	ATI	.8	600
125	El. Ma.	EM	.8	720
112	G.E.	TS954S	.8	1200
110	*Cr. Wh.	103-5-8	.8	900
100	*G.E.	ATI-8	.8	900

MOTOR GENERATOR SETS 1000 K.W., Gen. Elec., type MPC, shunt 275 volt, 3640 amp. direct connected to 1120 K.V.A. Gen. Elec. type TS, 3 ph. 60 cy. 4600 volt, 141 amp. .8 PF., 514 RPM, on fab. sub-base (250 volt fields bus excited).

2 COMPLETE VARI-VOLT DRIVES

M.G. Set. 200 K.W., D.C. gen., Elec. type MPC, 250 volts, 800 amps, 1200 RPM, dir. conn. to 300 HP sys. motor. Gen. Elec. type TS, 3 ph. 60 cy. 440 volt, .8 PF., 1200 RPM.

D. C. Motor, 250 HP, Gen. Elec. type MPC, 245 volts, 730/975 RPM, with complete starting and control panels.

MOTOR GENERATOR SETS

K.W.	Make	A.C.	D.C.
1000	G.E.	4600	275
500	G.E.	2300	230
500	G.E.	440	250
500	G.E.	4000	1200
450	G.E.	2300	255
200	Cr. Wh.	2300	120
200	G.E.	440	255
150	Al. Ch.	220	120
100	G.E.	400	250
75	Star	440	230
75	G.E.	440	250
60	Al. Ch.	2300	115
60	Fr. Morse	220	120
50	Westg.	220	110
40	Cr. Wh.	220	125
20	G.E.	440	250
20	G.E.	440	125
15	Ideal	220	125
10	Cr. Wh.	220	125
10	Ideal	220	125

LOW VOLTAGE—M.G. SETS

Amp.	Make	A.C.	D.C.
1500	Chandyn	440	60
1500	G.E.	2300	60
1000	Chandyn.	440	40
333	Columbus	440	45

ROTARY CONVERTERS

K.W.	Make	Characteristics
50	N.W.	3 ph. 220 V. to 115/250 V. D.C.
21	G.E.	230 V. D.C. to 3 ph. 120/208 A.C.
6	G.E.	230 V. D.C. to 3 ph. 220 V. A.C.
3	N.W.	240 V. 1 ph. A.C. to 110 V. D.C.
2.5	N.W.	110 V. 1 ph. A.C. to 220 V. D.C.

BALANCING SETS

1—34 K.W., 250 v., 270 a. neu. Hogue, type MCI, 125 v. gen. BB, comp'd, d/c on fab. base.
1—20 K.W., 250 v., 160 a. neu. Cr. Wh., type 151, 125 v. gen. 3 sl. brg. Close cpld.

D. C. MOTORS—230 V.

H.P.	Make	Type	Speed
250	G.E.	MPC-6A	730/975
150	G.E.	RC-39A	600
100	Al. Ch.	E-182	575/1150
100	West. Elec.	RC-34	2500
75	G.E.	RC	1200
60	Westg.	SK-133	1200
40	Roth	FR-50	690
40	G.E.	RC-34A	750
40	Al. Ch.	R-131	850
35	Cr. Wh.	CM-351	700
35	Sprague	C	600
30	Westg.	SK-120	975
30	Sprague	C-60	300
30	Cr. Wh.	CCM-50H	450
25	Westg.	SK-100L	1100
25	Al. Ch.		700
25	Westg.	S-9	560
20	Westg.	SK-83	1800
20	G.E.	RC11-A29	1150
20	G.E.	RC12A	800
20	Cr. Wh.	CM-201	775
20	Sprague	LC	575

D. C. VARI-SPEED—230 V.

500	G.E.	MPC	160/250
325	Westg.	QM	450/900
230	G.E.	MPC	730/900
125	Reliance	1050T	600/1800
100	Al. Ch.	E-182	525/1150
60	Westg.	SK-170	525/1000
60	Nat.		250/1000
35	Sprague	C-60	300/900
30	Westg.	SA-8	500/1500
30	Westg.	SA-12	400/1200
25	G.E.	CD-105	500/1500
20	Al. Ch.	E-145	300/1200
15	Reliance	185T	400/1600
15	G.E.	CD-150	400/1600
15	G.E.	RF-11	400/1400
15	G.E.	RC-116	500/1500
10	G.E.	CD-83	600/1800
10	Westg.	SK-100	400/1600

AIR COMPRESSORS

100/125 lbs. pressure

CFM	Size	Mfg.	Desc.
426	12x11	Worth.	H.B.
250	10x10	Chgo. Pneu.	N.S.B.
250	10x10	Chgo. Pneu.	L.S.B.
211	9x 9	Worth.	H.B.
122	7x 7	Worth.	H.P.
89	6x 7	Chgo. Pneu.	T.B.

TRANSFORMERS

Q-KVA	Ph.	Make	Pri./Sec.
4—3333	1	G.E.	44000/6600
3—1500	3	Gregory	4160/ 480
3—1000	1	Westg.	66000/7200
3— 500	1	G.E.	2400/ 480
6— 333	1	Al. Ch.	13200/7200
6— 200	1	Westg.	2400/ 480
3— 200	1	G.E.	7260/2300
3— 150	1	G.E.	33000/ 480
3— 100	1	G.E.	7200/2300
3— 25	1	Al. Ch.	2400/ 240

750 K.V.A. DRY TRANSFORMERS

6—750 KVA Westinghouse air cooled Class B. wdg. 16,800 V. pri. to 460 V. sec. 3 ph. 60 cy. 4—2½ taps.

BOILERS

HP.	Description
414	Comb. Eng. St. Tube 265 lb.
400	Erie City St. Tube 200 lb.
350	Union Iron St. Tube 175 lb.
192	Keeler with stoker 160 lb.
150	Burnham rotary 160 lb.
60	Dptton—vertical 100 lb.

TURBINE SETS

K.V.A.	Make	Press.	Volt
1800	Gen. Elec.	400-C	2300
1250	Gen. Elec.	750-NC	2300
625	Al. Ch.	140-C	480
312	Moore-C. W.	425-C	480
25	DeLaval-C. W.	150-NC	240

DIESEL—GAS. ENG. SETS

3 phase, 60 cycle

K.V.A.	Make	Model	Speed
1250	Gen. Motors	16-278A	720
900	Gen. Motors	12-567	720
312	Gen. Motors	8-268-A	1200
100	Gen. Motors	3-268A	1200
75	Oil Well	4UD	720
62	Int. Harv.	UD-18	1200
31.2	Cummins	H-1	1200

GASOLINE ENG. SETS

3 ph. and 1 ph.—60 cycle

K.V.A.	Make	Model	Speed
31.2	Le Roi	E83-50	1200
25	Le Roi	E83-50	900
10	Onan	PE95G	1800

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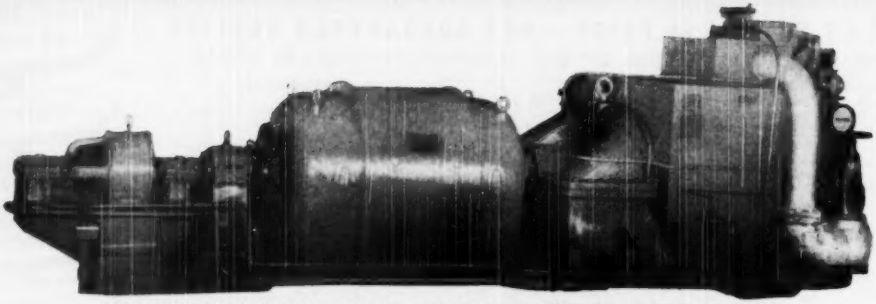


1250 KVA WESTINGHOUSE AUTOMATIC EXTRACTION TURBO UNIT

1250 KVA Westinghouse generator, 3 phase, 60 cycle, 480 volts, direct connected to Westinghouse automatic extraction condensing turbine, 150-200# steam pressure, 100° superheat, 0-10# extraction pressure, 3600 RPM. Equipped with direct connected exciter, switchboard, surface condenser and auxiliaries.

TURBINE GENERATOR UNITS—3 phase 60 cycle

6250 KVA Allis condensing, 200# steam, 2400/4160 volts.

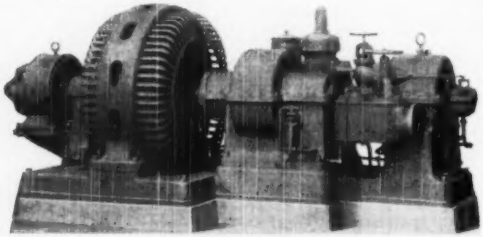
5000 KVA G.E. non-condensing, 600# steam, 50# exhaust, 150# extraction, 13,800/6900/4000 volts.

3125 KVA (New) G.E. condensing, 600# steam, 13800/4150/2300/480 volts.

2500 KVA (New) G.E. automatic extraction, 600/400# steam, 100/150# extraction, 4150/2300/480 volts.

1875 KVA Allis condensing 200# steam, 2300 volts.

1250 KVA Westg., condensing, 150/200# steam, 240/480 volts.



625 KVA WESTINGHOUSE NON-CONDENSING TURBO UNIT

625 KVA Westinghouse generator, 3 phase, 60 cycle, 480 volts, 900 RPM, direct connected through reduction gear to Westinghouse non-condensing turbine 150-200# steam pressure, 0-100° superheat, 0-10# back pressure, 6000 RPM. Equipped with direct connected exciter and switchboard.

SPECIAL HIGH FREQUENCY TURBO UNITS

2000 KW (3) General Electric generators, 3 phase, 120/180/240 cycles, 2300/4150 volts, direct connected to General Electric automatic extraction condensing turbines, 10 stage, 600/400# steam pressure, 750° FTT, 100-150# extraction.

Brand New — Still in Original Crates

UNIFLOW UNITS—3 phase 60 cycle

750 KVA Ames Vertical, 150# steam, 5# exhaust, 4000/2300/480 volts.

625 KVA Skinner, 150# steam, 5# exhaust, 240/480 volts.

500 KVA Skinner, 150# steam, 5# exhaust, 2300/480 volts.

375 KVA Skinner, 150# steam, 5# exhaust, 2300/480 volts.

250 KVA Skinner, 150# steam, 5# exhaust, 480 volts.

250 KVA Ames Vertical, 150# steam, 5# exhaust, 480 volts.

188 KVA Ames Vertical, 150# steam, 5# exhaust, 480 volts.

175 KVA Skinner, 150# steam, 5# exhaust, 240 volts.

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INTERNATIONAL POWER MACHINERY CO.

UNION COMMERCE BLDG. Telephone: MAin 1-9514 CLEVELAND 14, OHIO

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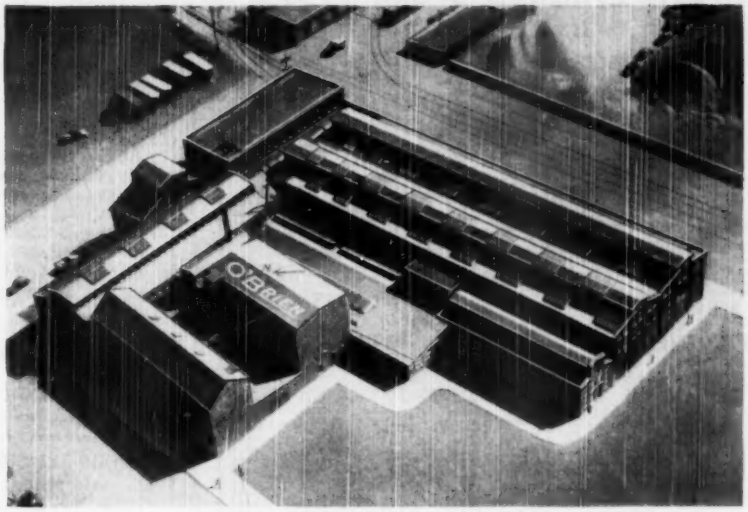

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Rebuilt to N.I.S.A. Standards

MOTOR GENERATOR SETS

3 ph. 60 cycle

Qu.	KW	Make	Speed	D.C. Volts	A.C. Volts
1	1800	G.E.	600	125/250	4000
1	1500	G.E.	600	600	2300/4150
1	1500	G.E.	360	275	2200/4400
1	1250	G.E.	600	275	2300
1	1000	G.E.	720	250	2300/13200
1	1000	Whse	900	600	2300/4150
1	1000	West.	514	250	4150
1	800	G.E. (3U)	1200	120/240	2300
1	750	Whse	900	250	2300
1	500	G.E.	900	250	440/2300
1	500	G.E.	720	125	2300/4000
2	400	G.E.	720	250	440/2300
1	400	G.E.	1200	120/240	440
1	400	G.E.	720	600	9500
1	350	G.E.	900	125	2300/4150
1	300	Whse.	1200	250	1200
1	150	Cr. Wh.	1200	250	440
1	140(3U)	Cr. Wh.	690	125/250	2300
1	100	G.E.	1170	125	220
1	75	Cr. Wh.	1170	250	220/440
1	75	Cr. Wh.	1200	250	550

ROTARY CONVERTERS

60 Cycle

Qu.	KW	Make	Speed	D.C. Volts	A.C. Volts
1—	2000	G.E.	514	600	13800
1—	2000	G.E.	450	600	2300
1—	1000	Whse.	900	600	11000
1—	750	Whse.	900	600	13200

RECTIFIERS

1—	750	G.E.	BHW	575	2300
1—	1000	A.C.	B-612	625	13500
1—	1000*	A.B.B.	GRZ	625	6600/13200

*This unit with full automatic control good for both 25 and 60 cycle.

TURBO GENERATORS

Qu.	KW	Make	Desc.
1	750	Al. Ch.	Condensing 135/150# ISP 2300/4150 V 3 ph. 60 cy.
1	1000	G.E.	Non Cond. 150 lbs.—ISP 5/10 lbs. B.P. 480 V. 3 ph. 60 cy
2	750	G.E.	Condensing 250/275# ISP 440V. 3 ph. 60 cy. (New 1944)
2	400	G.E.	Condensing. 275# ISP Geared to 1200 RPM. 120/240V. D.C. Generator.
1	300	Worth.	Non-condensing 125/150# ISP 5/20# B.P. 240/480V 3 ph. 60 cy. direct conn. exciter.
1	300	G.E.	Non-condensing 150/175# ISP 5/15# B.P. 480V. 3 ph. 60 cy.
1	300	Al. Ch.	Condensing 425# ISP Geared to 1200 RPM 120/240V. D. C
	200	Cr. Wh.	Condensing 250# ISP GEARED to 1200 RPM—125V. D.C. Gen.
1	200	Whse.	Non-condensing 150# ISP 7# B.P. 240V. 3 ph. 60 cy.

TRANSFORMERS

60 Cycles

Qu.	KVA.	Make	Type	Ph.	Voltages
1	2500	Packard	AT	3	13800 x 2300
1	2500	Al. Ch.	OISC	3	13200 x 2300
3	1000	Pitts.	OISC	1	13200 x 2300
5	125	G.E.	H	1	6600 x 500
1	1000	G.E.	WCTH	3	11000 x 445
3	667	Al. Ch.	OISC	1	13200 x 230/460
1	600	Al. Ch.	OISC	3	4800/2300 x 216
3	333	Pitts.	OISC	1	26400 x 2600
3	333	Maloney	OISC	1	7620/13200Y x 120/240
6	250	Whse.	OISC	1	11000 x 240
3	250	Al. Ch.	OISC	1	2300 x 230
3	200	Whse.	OISC	1	7200 x 240/480

D. C. MOTORS

HP	Make	Type	Volts	Speed
1—1750	Whse.		600	525/720
1—1500	Whse.		525	600
1—1200	Whse.		600	425
1—940	Whse.	QM-R.Brg.	250	140/170
1—600/1000	Whse.		450	600/720
1—650	G.E.	MPC	250	115/145
1—600	Al. Ch.	MILL	230	400/800
1—300/400	G.E.	DYNA	250	1325/2500
1—335	Whse.	MG	250	300/900
1—200/300	G.E.	MPC	230	360/920
1—275	Whse.	QM-600-6	230	425/850
1—250	G.E.	MPC	230	400/500
1—150	G.E.	MPC	230	250/450
1—150	G.E.		600	250/750
10—150	Cr. Wh.	83H	230	800

FREQUENCY CHANGERS

1—2000	G.E.	25/60 Cycle	2300/2300V
1—500	A.C.	25/60 cycle	11000/2300V

A. C. MOTORS

3 ph. 60 cycle

SYNCHRONOUS

HP	Make	Type	Volts	Speed
2—3500	G.E.	TS	2300	257
1—2100	G.E.	ATI	4600	514
2—2000	Whse.		2300	120
1—1470	Whse.		4600	900
1—1000	Whse.		2300	189½
2— 900	Al. Ch.	(New)	2200	150
1— 650	Whse.	G	2300	133
1— 600	Whse.	Syn.	440	300
1— 450	Whse.	Ftg.	2200	128.5
2— 350	G.E.	TS	2200	150
1— 320	G.E.	ATI	2300	600
1— 300	G.E.	ATI	440	720
1— 300	Whse.		2300	720
1— 300	Al. Ch.		440	600
1— 225	G.E.	ATI 1-Brg.	440	900
1— 125	G.E.	ATI	440	450
1— 100	E.M.	Unused	440	600
1— 100	Whse.		550	600

SLIP RING

2— 700	Whse.	CW	2300	900
1— 500	G.E.	IP	550	505
1— 500	G.E.	IM-Mill	2200	450
2— 350	Whse.	CW	2300	800
1— 350	G.E.	MT-442Y	2300/4000	253
1— 300	Al. Ch.	3 Brg.	2300	505
1— 300	G.E.	IM	440	720
9— 300	Al. Ch.	ANY	2200	700
1— 250	G.E.	MT-424Y	4000	257
1— 250	G.E.	M-571TEFC	440	600
1— 250	G.E.	MT-559S	2300	1750
2— 125	G.E.	MT-566	440/2200	435
4— 100	G.E.	MT-566Y	440/220	425
2— 100	G.E.	IM-16	2200	435
2— 100	G.E.	IM	440	600

SQUIRREL CAGE

2— 450	Whse.	CS	2300/4150	354
1— 200	G.E.	IK	550	865
1— 200	G.E.	KT-557	440	1800
1— 200/112	G.E.	KF-559BS	440	1170/885
1— 125	Whse.	MS	440	485
1— 125	(New) G.E.	KF-TEFC	440	1190
1— 125	G.E.	KF-TEFC	440	3585
5— 125	Al. Ch.	ARW	2200	1750
1— 100	Al. Ch.	AR	2200	1170
1— 100	G.E.	IK-Vert.	2300	450
2— 100	G.E.	KT-543	220/440	1750
9— 75	G.E.	KT-547Y	2200	1160

SYNCHRONOUS CONDENSERS

Qu.	Kva.	Make	Type	Volts	Speed
1	5140	Whse.		4150	600
1	4000	G.E.	TSC	2400/4800	900
1	3000	Whse.		4800	720

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1 Phase 60 Cycle

Rebuilt and Guaranteed

3—1250 KVA—G.E. 13800 2400
3—1000 KVA—G.E. 13800 480
3—1250 KVA—G.E. 6900 480
3—1000 KVA—G.E. 4800 480
6— 500 KVA—West. 2400 240/480
9— 333 KVA—West. 6900 480
9— 333 KVA—West. 4800 480
9— 333 KVA—West. 2400 480
3— 200 KVA—G.E. 2400 480/240
3— 150 KVA—G.E. 2400 480/240
3— 100 KVA—G.E. 2400 480/240
3— 100 KVA — G.E. 6900/11950Y 460/230
3— 75 KVA—West. 4800/2400 460/230
3— 50 KVA—G.E. 4800/2400 460/230/115
3— 37½ KVA — G.E. 4800/2400 460/230/115

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2—300 KW G.E. Syn. 250 V. 1200 RPM
1—300 KW G.E. Syn. 600 V. 1200 RPM
1—200 KW G.E. Syn. 25 V. 1200 RPM
1—200 KW G.E. Syn. 600 V. 1200 RPM
1—150 KW G.E. Syn. 250 V. 1200 RPM

ROTARY CONVERTER

1—300 KW G.E., Syn. 600 V. HCC 1200 RPM

ARMATURES

1—500 KW G.E. 250 V. MPC 900 RPM Arm.
1—300 KW G.E. 250 V. HCC 1200 RPM Arm.

TRANSFORMERS

3—100 KVA G.E. 2200/4400/7620—220/440, 2300/4600/8000—230/460, 2400/4800/8320 240/480

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225 HP Busch Sulzer Model DF, 3 cyl., 4 cycle, solid injection, 360 RPM. Direct erator with direct connected exciter, air connected 150 KW 3/60/2300 volt generator, filter, muffler, etc. A modern unit in perfect condition only $4000 f.o.b. St. Louis.

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ELECTRIC MOTORS & GENERATORS

Backed by 44 Years of Quality & Service

M-G SETS

KW	Mfr	Input V	Output V
500	G.E.*	2300 AC	250 DC
300	Allis Ch.*	220/440 AC	250 DC
300	Gen. Elec.	440/25 cy.	275 DC
200	Ridgeway*	2300/4000 AC	350 DC
200	Gen. Elec.*	220/440 AC	125 DC
200	Reliance*	220/440 AC	250 DC
150	Gen. Elec.	220/440 AC	125/250 DC
150	Burke*	250/440 AC	250 AC
105	Century b.b.	220/440 AC	70 DC
100	Allis Ch.	220/440 AC	125/250 DC
100	Allis Ch.	2200 AC	250 DC
15	Gen. Elec. (3)	220/440 AC	125 DC
75	Cr. Wh. b.b. (2)	220/440 AC	250 DC
75	Star* b.b. NEW	220/440 AC	50 DC
50	Whse.	220/440 AC	250 DC
50	Gen. Elec. (2)	220/440 AC	125 DC

*Syn. motor drive.

D. C. MOTORS

HP	Mfr	Type	Volts	Speed
200	Reliance	1970	230	575/750
150	Whse.	SK201	230	300/900
150	Cr. Wheeler b.b.	52H	230	1200
150	Cr. Wheeler b.b.	TEFC	230	800
100	Whse.	SK181	230	450/900
100	Gen. Elec.	C	230	575/1000
100	Gen. Elec.	RC36	115	1150
75	Allis Ch.	E-149	230	500
75	Northw'n	K20	230	1750
75	Cr. Wh. NEW b.b.	CMC-HH	230	1150
75	Century NEW	DN	230	850
60	Century NEW	DN	230	1150
60	Century NEW	DN	230	1750
50	Cr. Wheeler	FH	230	1750
50	Gen. Elec. b.b.	CDM	115	1150
40/60	Whse. (2)	SK 70	230	500/1000
40	Cr. Wheeler	EH	230	1750
40	Century (2) NEW	DN	230	1150
40	Whse. (2)	SK130	230	950
35/50	Gen. Elec.	CD123	230	575/1150
30	Reliance b.b. (3)	230T	230	850
30	Whse.	SK93	230	1750

D. C. GENERATORS

HP	Mfr	Type	Volts	Speed
300	Gen. Elec. 1 brg.	DMC	275	720
200	Reliance	1970T	250	720
150	Cr. Wheeler b.b	TEFC	250	1200
125	Cr. Wheeler b.b.	52H	250	1200
105	Century b.b.	1560 amp.	70	1200
100	Gen. Elec.	C	250	750
100	Allis Ch. 3 brgs.	MUW	120/240	1200
75	Cr. Wh. NEW b.b. (3)	HH	250	1450
75	Allis Ch.	E	250	750
75	Gen. Elec. (2)	RC36	125	1200
50	Whse.	SK	250	1200
50	Gen. Elec. b.b.	CDM	125	1450

A. C. MOTORS—25 CYCLE

HP	Mfr	Type	Volts	Speed
360	Gen. Elec.	I-M	440	750
150	Whse.	HF	440	500
150	Gen. Elec.	IK-16	440	750
50	Gen. Elec. int.	MTC5337	440	750
50	Gen. Elec.	I-K	440	750
50	Gen. Elec.	KT329	440	1500
40	Gen. Elec.	KT343	440	750

A. C. GENERATORS—60 CYCLE

KVA	Mfr	Type	Volts	Speed
625	Gen. Elec.	ATB	2300	450
375	Gen. Elec.	ATH7567	240/480	1200
250	Whse.	G	2400/480	600
225	Gen. Elec.	ATB	240/480	600
187	Gen. Elec. (2)	ATB	240/480	900
156	Elec. Machy.	3 brg.	240/480	
125	Gen. Elec.	ATB	240/480	720
125	Gen. Elec.	ATB	240/480	900
100	Gen. Elec.	ATB	2300	

A. C. MOTORS—SLIP RING
3 Phase 60 Cycle 220 or 440 Volts

Qu	HP	Mfr	Type	Speed
1—	600	Gen. Elec.	I-M	360
1—	500	Allis Ch.	ANY	450
1—	400	Gen. Elec. 2200V.	IM-ER	1800
2—	300	Allis Ch. 2200V.	ANY	720
1—	300	Gen. Elec. 2200V.	I-M	1800
1—	250	Allis Ch. 2200V.	ANY	514
2—	200	Gen. Elec. 2200V.	I-M-16	600
1—	200	Gen. Elec.	I-M	360
1—	200	Allis Ch. 2200V.	ANY	720
1—	150	Gen. Elec. 2200V.	I-M-16	600
1—	150	G.E. 2200/4000V.	I-M	1200
1—	150	Allis Ch.	ANY	600
1—	150	Gen Elec.	I-M-17	450
1—	100	Gen. Elec.	MT358	900
1—	100	Gen. Elec.	I-M	720
1—	100	Allis Ch.	ANY	1800
1—	100	Allis Ch. b.b. NEW	ABY	600
1—	75	Howell	SR443	1800
1—	75	Cont. b.b. NEW	SN584	1200
1—	75	Gen. Elec.	I-M-R15	1200
1—	75	Gen. Elec.	I-M-14	720
2—	75	Gen. Elec.	MTC5242	800
1—	75	Gen. Elec. int. duty	MT558	600
1—	75	Gen. Elec.	MT556	720
1—	75	G.E. 2200V.	ANY	900
1—	50	Allis Ch.	SR437	1200
1—	50	Howell	ITV5012	600
1—	50	Gen. Elec. int.	I-M	720
1—	50	Gen. Elec.	NTC5526	900
1—	40	Gen. Elec. int.		

A. C. MOTORS—SYNCHRONOUS

HP	Mfr	Type	Volts	Speed
600	Gen. Elec. (2)	TS	2200	514
400	Gen. Elec. SPF	TS	220/440	1200
300	Whse.	G	2200/440	600
275	Gen. Elec. (2)	ATI	2200	450
220	G.E. 3 brg. SPF	ATI	220/440	600
200	GE. SPF	ATI	220/440	900
196	El. Machy.	3 brg	220/440	514
175	Gen. Elec. (2)	ATI	2200	450
150	Gen. Elec.	ATI	220/440	300
150	Gen. Elec. (2)	ATI	220/440	720
100	American b.b.	YGH	220/440	900

A. C. MOTORS—SQUIRREL CAGE
3 Phase 60 Cycle 220 or 440 Volts

Qu	HP	Mfr	Type	Speed
1—	400	Whse. 2200V.	CS	1800
1—	250	Gen. Elec.	PT549AE	3600
1—	250	Gen. Elec.	PT-19	600
1—	250	Whse.	CS954A	720
1—	200	Whse. b.b. NEW	CS875	1800
1—	200	Allis Ch.	AN	1200
1—	150	Gen. Elec. TEFC b.b.	K63338	1200
1—	150	Gen. Elec.	I-K-16	600
1—	150	Reliance b.b. NEW	B6085	1200
2—	150	Gen. Elec.	KP557	1200
1—	150	Gen. Elec. TEFC b.b.	K6335	720
1—	150	Gen. Elec.	IK-E35A	1800
2—	125	Gen. Elec.	K5058	1800
1—	125	Reliance b.b. NEW	C5085	1200
1—	125	Allis Ch. 2200V.	AN	1200
1—	125	Gen. Elec.	I-K-16	450
1—	125	Cont. 2200V. b.b.	SC	1800
2—	125	Rel. TEFC NEW	B6085	1800
2—	125	F.M. 2200V. vertical	UH-16D	1200
3—	100	Allis Ch. 2200V.	AR226	1200
1—	100	Reliance b.b. NEW	C5085	900
1—	100	Rel. TEFC NEW	C5085	1200
1—	100	Gen. Elec. b.b. NEW	K5048	1800
1—	100	Cont. TEFC	NP582	1200
1—	100	Gen. Elec.	I-K-J	720
2—	75	Gen. Elec.	I-K	600
1—	75	Reliance b.b. NEW	C8084	900
1—	75	Reliance TEFC NEW	C5084	1200
1—	75	Reliance b.b. NEW	C505	1800
1—	75	Gen. Elec.	KT329Y	3600
2—	75	Reliance b.b. NEW	C505	1200
1—	60	Al. Ch. 2200V.	AH226C	900
1—	60	Gen. Elec.	KT554	720
2—	60	Reliance b.b. NEW	B504	1800
2—	60	Reliance TEFC NEW	C505	1200
2—	60	Reliance b.b. NEW	C504	1200
2—	60	Whse. H.T.	CS504	1800
1—	60	Wagner b.b.	RP444	3600
1—	50	Allis Ch. b.b.	ARX445	1800
1—	50	G.E. NEW b.b. HT	KG405	1800
2—	50	Reliance b.b. NEW	C445	1200
1—	50	Gen. Elec.	KT342	900
1—	50	Whse. blstlip	WL607	900
1—	50	Whse. b.b.	CS504	1200
2—	50	Gen. Elec.	KT553	600

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- FREQUENCY CHANGERS.
- CIRCUIT BREAKERS, AC & DC.

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This is a partial Stock list of 100 HP and larger—
Thousands of smaller items in stock — Ask for 1950 Stock Catalogue

SQUIRREL CAGE

220/440 Volt—60 Cycle 3 Phase

H.P.	Speed	Make	Type
450	720	G.E.	IK (2300V)
400	1200	West.	CCL
400	514	West.	CS (2200V)
300	600	West.	CS 39A (2300 V)
300	500	G.E.	IK (2300V)
300	750	G.E.	IK (6600V-25 cy)
250	3600	G.E.	FTP 549 (2300V)
250	1200	G.E.	IK 15 (2300 V)
200*	1800	Rel.	B6065 S
200*	1800	Wagner	26V
200	900	West.	CS 874 D (550V)
200	600	Alch	3 Brg
200	1500	West.	CS (2300V-25 cy)
200	750	G.E.	IK (25 cy)
200	500	West.	CS (220V-25 cy)
150	1700	G.E.	KT (2300V-25 cy)
150	720	G.E.	K 6535 TEFC (550V)
150	600	G.E.	IK 17 (2300V)
150*	1800	Alch	AR 826 ASW
150*	1200	Alch	AR 826 LS
150*	900	Alch	ARW 826 W
135	1200	Century	SCN 584 W
125	1500	G.E.	KF 548 Z (25 cy)
125	3600	West.	CS 771.6 TEFC (2300V)
125	3600	G.E.	FT 537 Z
125	900	G.E.	KT 558
100*	1800	West.	CS 6075 (2200V)
100*	3600	Rel.	50855 S TEFC
100*	1800	L.A.	594
100	750	G.E.	IK (2200V125 cy)
100*	1800	West.	CS 504 S
100*	1200	Rel.	C 5685 TEFC
100*	1200	Rel.	C5684

*NEW

SLIP RING MOTORS

220/440 Volt—60 Cycle 3 Phase
(Unless otherwise indicated)

HP	Make	Speed	Type
650	West.	365	CW-1 (25 cy)
600	G.E.	1800	IM-15
500	G.E.	1800	IM
500	Alch	514	(2200V)
500	G.E.	375	IM (220V 25 cy)
300	G.E.	500	IM-17 (550V)
250	G.E.	480	IM (550V)
250	G.E.	500	IM-17 (25 cy)
200	G.E.	600	IM
200	G.E.	600	IM-12 (2200V)
200	G.E.	1200	MT 565 (550V)
200	West.	500	CW (25 cy)
200	G.E.	500	IM-17 (550V-25 cy)
200	West.	750	CW 961.5 (440V-25 cy)
200	G.E.	1200	MT 558 Y
200	G.E.	500	IM (2300V 25 cy)
150	G.E.	500	IM-17 (25 cy)
150	G.E.	514	IM-16
150*	West.	900	CW-TEFC
150	G.E.	900	MT 558
125	G.E.	900	MT 558
125	G.E.	1500	IM (25 cy)
100	G.E.	450	IM-17 TEFC (2200V
100	G.E.	600	MQC (2 phase)
100*	Alch	900	ABY
100*	West.	900	CW 771C

*NEW

TRANSFORMERS

O.I.S.C.—Outdoor Type
60 Cycle—Single Phase

KVA	Make	Pri. V.	Sec. V.
3000	G.E.	23000	2400 (25 cy, 3 ph)
1500	G.E.	2200	600
1000	West.	2200	220 D
500	G.E.	6640/11500	85/120 (25 cy)
500	G.E.	11430	2300
500	Uptegraff	12000	2300
500	G.E.	34500	230/460
450	G.E.	23000	445
333	Pitts.	13800	230/460
333	Al. Ch.	11500	240/480
300	G.E.	2400	120/240
300	Pitts.	2300	115/230
250	West.	4160	120/240
250	Wagner	2400	240/480
200	Kuhlman	4150	480
200	Wagner	4000	240/480
200	G.E.	11500	445 (25 cy)
200	Surges	440	120 (air 3 ph)
200	G.E.	2200	110/220
200	G.E.	6900	2400
150	G.E.	13800	115/230
150	Wagner	2400	120/240
150	G.E.	600	120/240
125*	G.E.	500	220 (Air)
125	AlCh	440	110/220
100	G.E.	13200	2400/4800

FREQUENCY CHANGERS

KW or KVA	Make	Cycles Output	Cycles Input
1000 KW	Al. Ch.	60	25
500 KW	G.E.	60	25
250 KVA	G.E.	60	25
125 KVA	G.E.	62.5	25
100 KW	Al. Ch.	60	25
100 KVA	Cr. Wh.	25	60
100 KW	G.E.	360	60

DC MOTORS GENERATORS

230 Volt—D.C.

HP-KW	Make	Speed	Type
400 HP	El.Dyn.	1500	MPC
300 KW	G.E.	1200	(170 V)
300 HP	G.E.	400/800	MPC
250 HP	West.	250/675	SK
250 HP*	West.	540/3000	SK 153.5 275/ 300V
250 KW	Al. Ch.	750	MPC
170 KW	G.E.	1200	(125V)
150 KW	Burke	750	125V
150 HP	West.	300/900	SK 201
150 KW	West.	750	SK 200 125/250V
125 KW	G.E.	1200	CDM (1540 V
100 KW	G.E.	1200	MPC (125V)
100 KW	Cr.Wh.	1200	CCD 65-H (125V)

*NEW

MOTOR GENERATOR SETS

(We Can Rewind Any AC Volts to Your Specifications)

K.W.	Speed	Make	Voltage DC	Voltage AC
1000	514	G.E.	600	6600/11400
750	720	Al. Ch.	250	208
500	720	West.	250	4600
500	720	West.	125	2200
500	600	West.	1500	2300
500	900	West.	1500	2300
500	720	G.E.	600	2300/4000
500	720	G.E.	600	2300
500	900	West.	275	220
200	600	G.E.	125	2200
200	750	El.Prod.	125/440	(25 cy)
200	750	G.E.	250	6600 (25 cy)
150	900	Gr.Wh.	250	440
105	1200	Century	70	220/440
100	1200	G.E.	250	2200
100	900	West.	125	220
100	1200	G.E.	125	220
100	1800	G.E.	125	220

SYNCHRONOUS MOTORS AND AC GENERATORS

60 Cycle, 3 Phase

KVA or HP	Speed	Make	Volts
5000 KVA	600	West.	5000
3000 KVA	720	West.	4800
2500 KVA	720	West.	4000
1675 KVA	600	G.E.	550
1438 HP	514	G.E.	6600/11400
1350 KVA	1200	West.	450
1000 KVA	750	El.Mch.	440 (25 cy)
1000 KW	750	Al.Ch.	2300 (25 cy)
800 HP	900	El.Mch.	2300
750 HP	720	G.E.	4000/2300
726 HP	900	West.	2300
710 HP	720	G.E.	4000/2300
650 HP	159	West.	2200
500 KVA	750	West.	2300
500 HP	750	West.	440 (25 cy)
500 HP	1200	Cr.Wh.	220
400 HP	1800	G.E.	2300
400 KW	250	G.E.	600 (25 cy)
400 KW	450	G.E.	2200
375 KVA	750	West.	440 (25 cy)
350 HP	720	G.E.	440
350 HP	225	G.E.	4800
333 KVA	1800	G.E.	900 (900 cy)
320 KW	1200	G.E.	720 (120 cy)
300 HP	180	Burke	2200
300 HP	750	Ideal	440 (25 cy)
300 KW	1200	G.E.	450
250 KVA	750	West.	220
250 HP	360	G.E.	220
240 HP	514	G.E.	2300
215 KVA	750	G.E.	2200
200 KVA	750	G.E.	4160
160 HP	1200	G.E.	220/440
160 HP	1200	West.	220/440
150 HP	1200	West.	220
150 KW	600	West.	2200
150 KVA	600	G.E.	240
150 KVA	900	G.E.	480
150 KW	900	G.E.	220
125 HP	1200	El.Mch.	440
125 HP	900	G.E.	440
100 KW	750	G.E.	550 (25 cy)
100 KVA	750	Crer.	480 (25 cy)
100 KW	900	G.E.	2300

Complete Inventory NEW Motors in Stock—1 HP to 300 HP—30% Discount

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TRANSFORMERS, ALL O.I.S.C., OUT-DOOR TYPE

1—5000 KVA., Gen. Elec. Type HT, Form DH 3 ph., 60 cy. 33000 vs. prim. with 4—2½% taps below—2300/4600 Delta and 4000Y vs. secy.
1—5000 KVA., Westgh. Type SL, 3 ph., 60 cy., 34500/33640/32775/31915/31050 vs prim. to 13750 vs. secy.
4—3333 KVA., G.E., Type H Form VD, 1 ph., 60 cy., 25400/44000Y vs. prim.—6600 vs. secy Impedance 7.12%.
3—1667 KVA., G.E., 1 ph., 60 cy., 66000/62700/59400/56100/52800 to 19100/33000Y vs.
1—450 KVA., 3 ph., 60 cy., Type 17 TRB., Volts Primary 2300/4000 Delta and 4000Y—to a Secondary Voltage of 230/460. Taps: 4000/3800/-3600 Star and and 4000/3885/3770/3655/2300/-2185/2070 Delta
3—333 KVA., G.E., Type HS, Form WD., 1 ph., 60 cy., 13200/12870/12540/12221/11880—2400/-2160Y volts.
3—250 KVA., Westgh., 1 ph., 60 cy., 22000/-21450/20900/20350/19800—to 2300 vs.
1—250 KVA., Gen. Elec., HT, Form F., 2300/-4000Y-575 volts.
4—75 KVA., 1 Ph., 60 Cy., H, Form KB, 13200/-12540/11880 vs. 440 vs. secy.
3—37½ KVA., Gen. Elec., H, Form KO, 1 ph., 60 cy., 13800/13110/12420—230/115 volts.
3—25 KVA., Gen. Elec., H, Form KR, 1 ph., 60 cy., 13800/13110/12420—230/460 volts.

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BELT CONVEYOR: 2800 ft. La-Del, 36" all steel, roller bearing equipped, complete with belt and drive; NEW 1947, slightly used.

TRANSFORMERS: 2—2500 KW, 3 phase, 60 cycle, 66,000 to 2300 volts. A complete Sub-Station.

COAL PULVERIZER: NEW, UNUSED, Babcock & Wilcox, capacity 7500 lbs. of coal per hour, 125 H.P. motor, complete.

HAMMER MILL: Jeffrey 24 x 36", type B-3, roller bearings, V-Belt, NEW condition.

A. J. O'NEILL
LANSDOWNE, PA.
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DIESEL ENGINE GENERATING UNITS

KVA	VOLTS	ENGINE	HP	CYL.	B & S	MODEL
47½	220	F & M	60	1	14x17	32
90	2300/220	F & M	120	2	14x17	32
100	220	Fulton	135	4	8x11½	L
200	2300/440	F & M	240	4	14x17	32
200	2300/440	F & M	240	4	14x17	Y-VA
300	2300/440	F & M	360	6	14x17	32
300	2300/440	F & M	360	6	14x17	Y-VA

DIESEL ENGINES

HP	MFG.	CYL.	B & S	MODEL	RPM
80	F & M	4	6 x 6½	34B (Marine)	360
82	Cat.	6	4¼x 5½	D-4600	1200
115	Cat.	6	5¼x 8	D-13000	900
120	Atlas	6	5¾x 8	D-17000	900
135	Cat.	8	7 x 8½		600
140	Atlas	6	7 x 8½		600
150	F & M	3	8¾x10½	HD-4400	450
180	F & M	6	8¾x10½	35-HE	450
180	Buda	6	6¼x 7½	JL-1335 (Gas)	1200
200	Buda	6	6¼x 8¾	D-1742	900
240	F & M	6	10 x12½	HC-44-10	425
300	F & M	8	14 x17	Y-VA	257

GENERAL MACHINERY & EQUIPMENT CO., INC.
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10 TON GANTRY CRANE 50' SPAN, 3 AC MOTORS CAB CONTROL.

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COMPLETE POWER PLANTS

STEAM — ELECTRIC — HYDRO — DIESEL
"Export Orders Carefully Executed"

BOILER UNITS
1—140,000# New Steam Generator 600#, also Super
2—90,000# Boilers, 625#, 825° F.tt., Economizer Air-heater
2—60,000# B&W 450# superheat
3—30,000# B&W 450# superheat
1—1000 HP Erie City Boiler, 200#
1—1000 HP Vogt 300# with Super
3—600 HP Edgemoor 200#
3—500 HP Stirling type Boilers, 450#, superheat
2—500 HP B&W Sectional Header 200# Boilers
2—300 HP Straight Tube 200# Boilers
Also smaller Boilers & Fire Tube Boilers

TURBO UNITS
1—10,000 KW Extraction type, cond. 600#
1—10,000 KW Turbo-Generator—Cond.
1—7,500 KW Turbo-Generator—Cond. 600#
1—7,500 KW Turbo-Generator, Cond.
1—5,000 KW Turbo-Generator—Cond.
2—3,000 KW & 2—2500 KW Cond.
3—2,000 KW same as above } Also 400# &
2—1,500 KW same as above } 600# turbos
2—1,250 KW same as above
2—1,000 KW same as above
1—500 KW same—Also 750 KW & 300 KW Units
Non-Cond.—300—500—750—1000—1500—2000

Complete Steam Plants with 2—1250 KW; 2—2500 KW; 2—3000 KW & 7500 KW
Frequency Changers—Transformers! Send us your requirements—We may have it.
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Boilers, Turbines, Engines Diesels, Generators, M.G. Sets. Transformers & Switchgear.

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2 Transformers, 1000 KVA, G.E. 11,470—2400 V. 3 phase, 75 KVA to 1½—2400/4160—120/240 all late model. 1 Turbogenerator, 200# press. condensing, 125 V. D.C. 3 Circuit Breakers, 15,000 V, 600 AMP. G.E. type FLD-1A. 20 Kelman 7500 V. 400 Amp. and 100 Amp. type F-1 and 611. 1 20,000 gal/day and 2—6000 gal/day, salt water distillation units. 1 60 H.P. drum hoist.

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1155 HARRISON ST., SAN FRANCISCO 3, CAL.

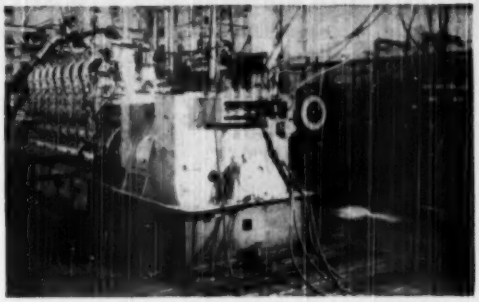
DIESEL POWER

AT 40% TO 60% SAVINGS

EACH ENGINE "REMANUFACTURED" AND "FULL-LOAD TESTED" PRIOR TO SHIPMENT

INSPECTION INVITED

ALL EQUIPMENT OFFERED WITH ONE YEAR GUARANTEE



VIEW OF ENGINE TEST STAND FACILITIES AT OUR PLANT IN SAUSALITO (S.F.) CALIF. ALL ENGINE TESTING CONFORMS TO DIESEL MANUFACTURERS' STANDARD METHODS.

A PARTIAL LIST OF OUR INVENTORY

KVA	MAKE	MODEL	HP	RPM	KVA	MAKE	MODEL	HP	RPM
1875	Fairbanks Morse	33E16	2000	300	312.5	Clark	MD-4	375	327
1420	Fairbanks Morse	38D	1600	720	300	Fairbanks Morse	YVA	360	257
1250	General Motors	16-278A	1600	720	250	General Motors	8-268A	350	1200
1000	General Motors	12-278A	1200	720	200	Buckeye	80	240	600
937.5	General Motors	12-567	1080	720	187.5	Ingersoll Rand	S	225	514
625	Alco	6-12½x13T	750	600	156	Buckeye	E	190	400
425	Baldwin	VO	510	450	125	General Motors	3-268A	150	1200
400	Buckeye	80	480	600	121	Fairbanks Morse	32E14	140	300
375	Enterprise	DSG-6	450	450	75	General Motors	6-71	90	1200
330	Superior	KNA	396	514	62.5	Int'l Harvester	UD-18	76	1200
312.5	General Motors	8-268A	450	1200	50	General Motors	4-71	60	1200

A. G. SCHOONMAKER COMPANY, INC.

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SHOPS AND WAREHOUSE: JERSEY CITY, N. J. AND SAUSALITO (S.F.) CALIFORNIA

MARQUETTE GOVERNORS

VARIOUS MODELS 100 AVAILABLE
Models: B-117, B-190-D, B-109, B-106, J-90-A, J-90-C, J-90.

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MODERN AIR COMPRESSORS

6040 Ft. INGERSOLL RAND 60 LB. ELECTRIC.
3—3865 Ft. NEW CHICAGO PNEU. OCE. ELEC. 125 LB. WITH MOTOR TO SUIT.
3176 Ft. SULLIVAN WR4 ELECTRIC. 125 LB.
1578 Ft. CHGO. PNEU. DIESEL. 125 LB.
1302 Ft. INGERSOLL RAND PRE-2 ELECTRIC. 100 LB.
810 Ft. WORTHINGTON V BELT DRIVE. 125 LB. WITH OR WITHOUT MOTOR.

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DIESEL ELECTRIC GENERATOR

New General Electric 750 KW, 4160/2400 Volts, 3/60/720 RPM, Type ATI, Direct Connected to G.M. Diesel Engine.

Also new 500 & 600 KW Diesel Generators

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BARGAINS—1—75 KW, 257 RPM, Diesel, D/C 2400 v. 3 ph. 60 cy. Fairbanks-Morse Power Unit. 1—400 HP, 2018#; 1—510 HP, 1808 Heine wt. boilers with type E underfeed and Cox Travel Grate Stokers. Good condition.
1—1000 KW GE, 2008 Turbine D/C, 2400 v. 3 ph. 60 cy. Generator, Surface Condenser, Circulating Pump; electric panel.

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521 K of P Bld. Indianapolis, Ind.

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AC-DIESEL ENGINE-GENERATORS

PRACTICALLY NEW

9—100 KW 3/60/460 WORTHINGTON DIESEL MODEL BB5
Price $5,000.00 each, f.o.b. Trenton

3—150 KW 3/60/460 BUCKEYE DIESEL MODEL 80
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All with Westinghouse Generators, Complete with Exciters, Cooling Systems, Starting Equipment, Switchboard, Silencers, etc.

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REWOUND
REBUILT
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200 KW M.G. SET

200 KW Westinghouse NEMA Frame Generator 250 V. DC 1200 RPM direct Connected to
300 HP. Westinghouse Synchronous Motor 3/60 220/440 Volts 1200 RPM.
AC & DC Panels—Like new. Ship now.

MOTORS

60—50—25 CYCLE
In stock—all sizes
Slipring — Squirrel Cage — Synchronous
All types of control equipment.

350 KW GENERATORS

2—350 KW General Electric Generators Type MPC, 250 Volt DC, 720 RPM Single Bearing Machines.

DIRECT CURRENT EQUIPMENT

125-250 Volt Motors, Generators and M-G Sets with controls.

SLIPRING MOTORS

500 HP Allis Chalmers type ANY-WR 3 phase, 60 cycle, 2300 volt 514 RPM.
100 HP Westinghouse type CW 3 phase, 60 cycle, 220/440 volt 450 RPM.

FREQUENCY CHANGERS

All Sizes in Stock. 60 cycle to 90 cycle, 100 cycle, 120 cycle, 180 cycle and any other high cycle.

ALL ITEMS IN STOCK FOR IMMEDIATE SHIPMENT

NIAGARA TRANSFORMERS

1 Phase — 60 Cycle — New

Stock Shipment on sizes listed. Short delivery on sizes up to 5000 KVA—1 or 3 phase, in voltage ratings to 69 KV. Standard taps. Built to A.I.E.E.—N.E.M.A.—A.S.A. Standards.

LISTING OF TRANSFORMERS

Quantity	KVA	Primary	Secondary
3	15	7200/12470Y	240/480
3	15	2400/4160Y	240/480
3	25	2400/4160Y	120/240
6	25	2400/4160Y	240/480
3	25	7200/12470Y	240/480
3	37½	2400/4160Y	120/240
6	37½	2400/4160Y	240/480
9	50	2400/4160Y	240/480
5	50	2400/4160Y	120/240
4	75	2400/4160Y	120/240
6	75	2400/4160Y	240/480
3	100	2400/4160Y	120/240
12	100	2400/4160Y	240/480
3	167	2400/4160Y	240/480
3	167	2400/4160Y	120/240
6	250	2400/4160Y	240/480
3	333	2400 x 4800	240 x 480
3	500	7200/12470Y	240 x 480

ERIE ELECTRIC CO., INC. 124 CHURCH ST. BUFFALO, N. Y. CL. 4758

NO YOU CAN'T BEAT GLOW FOR RELIABLE ELECTRICAL EQUIPMENT

SQUIRREL CAGE MOTORS

HP	RPM	Volts	Make
750	900	6600	Westgh
350	3550	2200	Westgh-CS
300	900	440	GE-I-17
250	1200	440	GE-KTR
250	600	2300	Triumph
225	514	440	GE-I-14
200	600	440	Westgh-CS
150	1800	440	Howell-SC
150	600	2200	GE
125	3600	220/440	ALCh.AN
125	1800	220/440	ALCh.AR
125	340	220	ALCh.

SLIP RING MOTORS

HP	RPM	Volts	Make
500	900	440	GE-3 Brg
400	1200	2300	ALCh.
375	1800	2300	ALCh
350	900	2300	Westgh
300	720	2300	ALCh.
250	720	440	GE-MT
250	300	2300	ALCh.
200	1800	440	ALCh.
150	1750	440	GE-MT
150	900	2200	ALCh.
100	1200	550	Westgh-CW
100	400	440	W-E-118

MOTOR GENERATOR SETS

KW	DC Volts	HP	AC Volts	Make
1800	250	2500	4800	GE
750	240	1100	2300	GE
400	250	600	220/440	GE
300	250	443	440	GE-EM
200	250	300	440	GE
150	250	225	440	C-W-EM
100	275	150	440	Wtg.
75	125	115	440	GE
50	125	100	2200	ALCh.
32	125	50	440	GE
25	250	40	220	Reliance-GE
20	250	30	220	GE

SYNCHRONOUS MOTORS

HP	RPM	Volts	Make
2000	720	4800	Wtg.
1015	500	2200	Wtg-25 cycle
500	514	440	GE
435	720	2300	GE type ATI
320	900	2300	GE-ATI
250	1800	2300/4160	GE-ATI
250	225	2200	GE-TS
225	900	4160	GE-ATI
220	600	2300	GE-ATI
175	225	220	GE-TS (rotor & stator only
160	600	440	GE-ATI
100	164	480	GE-TRF (rotor & stator only
150	1800	2200	GE
150	1800	220	GE-ATI, single bearing
150	900	440	Star
150	720	440	Westgh

FREQUENCY CHANGERS

Output KW	Output Volts	Input Volts	Make
2000	2300	2300	GE
1700	250	Any	GE-HCC
1100	250	Any	GE-HCC
100	2300	375	Wtg.
25	220	115	GE
20*	220	220	Delco
15*	220	220	GE
10**	220	550/220	GE

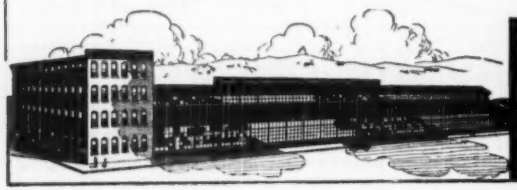
*60/180 cycles—**60/240 cycles

CAPACITORS

KVA	Volts	Phase	Make
75	440	1	Cornell-Dubilier
60	460	3	Westinghouse
15	460	3	General Electric
15	2400	1	General Electric

GLOW ELECTRIC CO., for over 44 years, has done engineered rebuilding of electrical equipment to assure you of quality and dependability.

We invite your inquiries.



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927 HARRIET ST. CINCINNATI 3, OHIO
PHONE MAIN 3024

POWER EQUIPMENT—READY TO SHIP

A.C. MOTORS—3 PH. 60 CY.

No.	HP.	Make	Type	Speed	Volts
1 NEW	200	West.	SYN	1200	220/440
1	250	Burke	SYN	720	2200
1 vert	350	G.E.		1177	2200
1	300	G.E.	I	860	2200
1	200	G.E.	SYN	1800	2200/550
1	175	West.	MS	1200	220/440
1	150	West.	SYN	257	220/440
1	150	West.	SYN	600	220/440
1	150	West.	SYN	900	2300
1	150	G.E.	I-K	1200	2200/220/440
1	150	West.	MS	1200	220/440
2	150	Louis Allis	FX	1750	220/440
4 NEW	125	West.	SYN	1200	220/440
1	125	G.E.	I-K	900	220/440
1 NEW	125	Elec. Mach.		580	2300/440
1	125	Elec. Mach.	SYN	164	220/440
1	125	West.	TEFC	3600	220/440
1	112	West.	SYN	1200	220/440
1	100	Reliance	IT	485	220/440
1	100	G.E.	I	720	220/440
1	100	Al. Chal.		720	220/440
1	100	G.E.	I-K	900	220/440
1	100	G.E.	I-K	900	2200
1	100	West.	SYN	900	220/440
1	100	Cr. Wh.	SC	1100	2200/220/440
1	100	Louis Allis	OGS	1750	220/440
1 NEW	75	Al. Chal.	AR	865	220/440
1	75	Al. Chal.		580	220/440
1	75	West.	CS-877C	660	220/440
1	75	G.E.	I-K	600	220/440
1	75	G.E.	I-K	720	2200
1	75	G.E.	I	720	220/440
1	75	Louis Allis	OGS	1200	220/440
1	75	Burke		1200	220/440
1	75	Louis Allis	FAA-565Y	1150	220/440
2	75	West.	CS (TEFC)	1750	220/440
1	60	Al. Chal.		515	220/440
1	60	G.E.	I-K	600	220/440
1	60	Cr. Wh.	SC	720	220/440
3 NEW	60	West.	CS-607 (EXPLOSION PROOF—TEFC)	900	220/440
1	60	Elec. Dyn.	drip pr.	3600	4000/2300
2	50	G.E.	KP-546	720	220/440
2 NEW	50	Reliance (TEFC)	B-504-S	1750	2200
3 NEW	50	G.E. (TEFC)	K-504	1750	2200
1 NEW	30	West.	CS-445 hi-torq	900	220/440

VARIABLE SPEED MOTORS—230 V. D.C.

HP	Make	Type	Rpm
100	West.	SK-130	500/1000
75	Louis Allis	F-210	400/1200
60	Louis Allis	F-210	400/1200
50	West.	SK-120	350/1050
50	West.	SK-153	600/1200
40	Elec. Gen.	180-S	385-1200
30	West.	SK-120	975/1750
30	G. E.	DLC-50	400/1200
30	West.	SK-130	725/1450

SPECIAL BARGAINS

Diesel Engine Generator Sets

10—100 kw., 120/240 v. D.C. Delco Generators dir. con. to 150 HP Model GBD-8, 5½x7, 8 cyl. Superior DIESEL Engines, elec. start with engine panels

4—100 KW same as above with 220 or 440 v. NEW A.C. Generators

1—63 kva. 120/208 v. 3 ph. 60 cy. 1800 rpm., driven by Cat. DIESEL mt'd on trailer

1—66 kva Fairbanks Morse 220/440 v. 3 ph. 60 cy. 360 rpm DIESEL

1—75 KW 220/440 v. 3 ph. 60 cy. International GASOLINE

2—75 kva. 220/440 v. 3 ph. 60 cy. Delco Cummins DIESEL

1—62 kva Fairbanks Morse 220/440 v. 3 ph. 60 cy. 1200 rpm DIESEL

2—37½ kva., 220/440 v. 3 ph. 60 cy. Buda DIESEL

10—NEW 37½ kva., 220/440 v. 3 ph. 60 cy. LeRoi Gasoline

1—31.3 kva. 120/208 v. 3 ph. 60 cy. G.E. Gen. driven by LeRoi GASOLINE

11—NEW 25 kva. 120/220 v. 1 ph. 60 cy. Le Roi GASOLINE

3—25 KW BRAND NEW Onan 220/440 v. 3 ph. 60 cy. 1800 rpm GASOLINE

1—12½ kva. 120/240 v. 1 ph. 60 cy. 1200 rpm., dir. con. Hercules GASOLINE

2—12 kva 120/240 v. 1 ph. 60 cy. Le Roi GASOLINE

2—1½ kw. 120/208 3 ph. 60 cy. Buda GAS.

SLIP RING MOTORS—3 ph. 60 cy.

HP	Make	Rpm	Volts
300	Ideal	1770	220/440
500	Ideal	1770	220/440
100	Ideal	1770	220/440
250	Crocker Wh.	600	220/440
75	G.E.	450	220/440
60	G.E. (1 ph.)	570	220/440

A. C. GENERATORS—3 ph. 60 cy.

No.	Kva	Make	Rpm	Volts
6 NEW	100	West.	1200	220/440
10 NEW	37½	West.	900	220/440
3	25	Onan	1800	220/440
11 NEW	25	West. (1 ph.)	900	220/440

M.G. SETS—"SPECIALS" READY TO SHIP

250 kw. West. 125/250 v. D.C. 2300/4000 v. 3 ph. 60 cy. 1200 rpm. Syn.

250 kw. West. 250 v. D.C. 1200 rpm., 380 HP. Syn. Motor 2300/4000 v. complete with swbds.

200 kw. West. 125/250 v. D.C. 3 wire 220/440 v. A.C. Syn.

200 kw. West. 250 V. D.C. 1200 rpm., dir. con. 300 HP. 220/440 v. 3 ph. 60 cy. Syn. Motor. A.C.

2—7½ kw. 120/208 3 ph. 60 cy. Buda GAS.

MOTOR GENERATOR SETS—250 V.D.C.

Motors 220/440 volt or 2200 volt 3 phase, 60 cycle

No.	KW	Make	Rpm
3	250	Westinghouse	1200
1	200	Westinghouse	720
2	200	Westinghouse	1200
1	100	Westinghouse	700
1	100	General Electric	900
1	100	Westinghouse	600
1	100	General Electric	1800
1	100	Reliance	580
1	100	Delco	1200
4	75	Westinghouse	720
1	75	Westinghouse	1200
1	60	Westinghouse	1200
3	40	Westinghouse	900
2	30	Westinghouse	720

125 V. DC M.G. Sets

1—100 kw. G.E. 125 v. 900 rpm. 220/440 v. 3 ph. 60 cy. AC Syn.

1—75 kw. West. 135 v. 1200 rpm. 220/440 v. 3 ph. 60 cy. Syn.

TRANSFORMERS—1 ph. 60 cy.

No.	Kva	Make	Pri.	Sec.
1	500	Standard	2300	575/460/345 230/115
3	500	G.E.	2300	220/440
6	333	Maloney	2300	230/460
3	200	G.E.	2300/4000	230/460
3	150	West.	2400/4160	240/480
3	150	Pgh.	2300	230/460
1	100	Peerless	2300	230/460

NEW DIESEL ENGINES

4—HERCULES, 6 cyl. with power takeoff, max. 135 hp. @ 2600 rpm min. 69 HP @ 1200 rpm.

VENTILATING FANS—Bargains

25—BRAND NEW 6900 cfm 3" stat. Pres. Sturtevant Ventilating with 5 HP., TEFC West. A.C. Motors 220/440 v. 3 ph. 60 cy.

GASOLINE FORK LIFT TRUCK

1—Clark Truclift 48" lift.

BRAND NEW TURBO SET

Westinghouse Steam Turbine consisting of 200 kw., 220/440 v., 3 ph. 60 cy. 1200 rpm., 80% P.F. A.C. Generator—40 kw. 120 v. 1200 rpm., D.C. Exciter and Westg. Reduction Gear—Non-cond.

SPECIAL BARGAIN AIR COMPRESSOR

6—240 CFM Westinghouse type 3 VS-23 3 cyl. vert., 150 lbs. pres. dir. con., to 50 HP., 220/440 or 2200 v. 3 ph. 60 cy. West Slip Ring Motors, auto. control. Can furnish D.C. Motors or Oil or Gasoline Engines if desired.

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100 K.W. Allis Chalmers. 1944. 3/60/120/450.
Exciter: 3 K.W. 120 V. D.C.
Diesel Engine: Lorimer. Model F5SS. 150 H.P. 7½"x9½".
5 cylinder, with electric starting motor.

MOTORS

Westinghouse. 1944. Synchronous—Induction.
60 Pole. 3300 S.H.P. 3 Phase. 82.5 Cycles. 2200 Volts.
165 R.P.M. Power Factor 100%.
Exciter: 125 Volts D.C. Load Factor 100%. 1944.

BOILERS

WATER TUBE. Babcock & Wilcox. 1945. 2 Drum. Bent Tube. Economisers. Internal Desuperheater. Superheaters. W.P. 400 P.S.I. Hydrostatic Press. 718 P.S.I. Heating Surfaces: 2441 sq. ft. Superheater 350 sq. ft. Economiser 1620 sq. ft. 3 Todd "Hex Press" Fuel Oil Burners. Diamond Soot Blowers. Auxiliaries available.

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two 100 KW 250 Volt DC Generators. Steam driven by Ball Engines—140# pressure.

one 200 KW 250 Volt DC Generator. Steam driven by Ball Engine—140# pressure. Units complete with DC switchboard and two balancer sets.

one 20 ton York Vertical Ammonia Compressor. Steam driven by Corliss Engine—140# pressure.

one 15 ton York Vertical Ammonia Compressor. V belt drive. 33 H.P.— DC motor. Complete with condenser, receiver, valves, gauges, etc.

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2—1000 & 2—10,000 Bbl. New Vertical
6—74,000, 55,000 & 37,500 Bbl. Vert.
8—25,000 Gal. Cap. Horizontal
50—10,000 & 9—20,000 Gal. Horizontal
6—10,000 & 12,000 & 18,000 Gal. ⅜" Shell
20—10,000 Gal. Cap. 60 lbs. Press. Test

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FOR SALE

1—Nordberg Uniflow Engine, 14 x 20, direct connected G. E. Generator, 125 KW, 240/-3/60, with switchboard and voltage regulator. *Excellent running condition.*

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Let's not make the big—and costly—mistake, then, of generalizing on religious or racial groups. Adopt and *carry out* these common sense principles:

1. Accept—or reject—people on *their individual worth.*
2. Don't listen to or spread rumors against a race or a religion.
3. Speak up, wherever we are, *against* prejudice. Work for understanding.

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SLIP RING MOTORS 3-Ph., 60 Cy.

HP	Volts	Make	Speed
600	2200	G.E.	1800
500	2300/440	G.E.	450
450	440/220	Whse.	514
350	2200/440	Whse.	600
250	440/220	Whse.	900
200	2300/440	G.E.	1200
200	440	G.E.	450
150	440/220	Whse.	600
150	440/220	Whse. (2)	1800
150	2300/440	G.E.	1200
150	440/220	G.E.	720
100	440/220	G.E.	600
100 (2)	440/220	Whse.	900
100	2200/550	G.E.	1800
80	440/220	G.E. (MTC)	900
75	2200/550	G.E.	1800

SYNCHRONOUS MOTORS 3-Ph., 60 Cy.

HP	Volts	Make	Type	RPM
400	440/220	G.E.	ATI	600
300	2200/440	G.E.	TS	720
300	440/220	G.E.	ATI	600
250	440/220	Whse.	HR	277
250	440/220	G.E.	ATI	600
250	4000/2300	El. Mchy.	Syn.	600
240	2300/440	G.E.	ATI	720
200	440/220	G.E.	TS	720
200	4150/2300	Whse.	G	1800
120	440/220	G.E.	ATI	900
110	440/220	G.E.	TS	257
100	440/220	Whse.	G	1800
75	2200/440	Whse.	GE	600

GENERATOR SETS

1—62½ kva. 1200 rpm. 220 volt. Whse., geared to 7300 rpm, Whse., non-cond. steam turbine, 150 lbs. pr.
2—unused 25 kva. 120/240 v., 3 ph., 1200 rpm. generator dir. conn. to Waukesha 6 cyl. gas engine

TURBO-GENERATOR

Generator, 62½ kva. 1200 rpm, 440/220 V., Whse., geared to 50 kw. 7300 rpm. non-condensing.

CIRCUIT BREAKERS

2—2000 amp., GG E. 3 pole, 600 v., air
2—1000 amp., ITE, 3 pole, 600 v., air
2—1200 ampere, Whse., 3 pole, 600 v., air

SQUIRREL CAGE MOTORS

HP	Volts	Make	Type	Speed
650	440	G.E.	PT	1800
500	2200	Cr. Wh.	SC	1800
500	440/220	G.E.	IK	900
350	2200	G.E.	KT	1200
300	2200	G.E.	PT	3600
300	2200	G.E.	KT	1800
250	2300/440	L. Allis	OGB	1200
200	440	G.E.	IK	514
200	440/220	Whse.	CS	1200
200	440/220	G.E.	KT	1800
200	2300/440	G.E.	KF	720
200	2200/550	Cr. Wh.	SC	900
200	2200/440	G.E.	KT	1200
200	440/220	G.E.	IK	450
150	440/220	G.E.	IK	450
100	2200/550	Whse.	CS	900
150	440/220	G.E.	KT	720
150	440/220	Howell	B. Brg.	1800
150 vert.	440/220	G.E.	KTP	1200
150	440/220	G.E.	IK	514
150	440/220	Whse.	CS (NEW)	900
100	2200/440	G.E.	K	1200

A. C. GENERATORS

1—320 kva. 660 rpm. 2300/440/220 V., G.E.
1—250 kva. 720 rpm. 2300/440 v., G.E.
1—225 kva. 600 rpm. 220/440 v., G.K.
1—225 kva. 720 rpm. 2300/440 v., G.K.
1—150 kva. 900 rpm. 440/240 v., G.K.
3— 75 kva. 1800 rpm. 480/240 v., Whse.

D. C. MOTORS

HP	Volts	Make	Type	Speed
350	230 (2)	G.E.	CD	1150
250	230 (3 new)	Cr. Wh.	CMC	1800
200	230	Cr. Wh.	CMC	890
150	230 (new)	Cr. Wh.	TSFC	900
100	230	Cr. Wh.	CMC	625
100	230	G.E.	CD	1750
75	230	G.E.	CD	1150
75	230	Whse.	SK	850

MOTOR GENERATOR SETS

1—300 kw. 1200 rpm. 250 v., G.E., connected to 500 hp. 1200 rpm. 2300/440 v., synchronous
1—185 kw. 1200 rpm. 240 v., G.E., conn. to 250 hp. 1200 rpm. 440/220 v., squirrel cage
1—100 kw. 250 v., Hertner, 1200 rpm. connected to 150 hp. 2300/440 v., synchronous
1—90 kw. 1200 rpm. 250 V., G.E., connected to 125 hp 2200/440 V. squirrel cage motor
1—75 kw. 125 v., 1200 rpm. G.E. conn. to 120 hp. 2200/440 v., syn. motor
1—30 kw. 250/125 V., 1200 rpm. 3-wire, G.E., conn. to 75 hp. 440/220 V., sq. cage

TRANSFORMERS 60 Cy.

3—667 kva. Whse., 33,000—2300 V.
3—333 kva. G.E., 13,200—2300 V.
3—333 kva. Whse. 2400—480/240 V., Dry
3—250 kva. G.E., 6600/13,200—230/460 V.
3—200 kva. Whse., 13,200—2300 V. (Inertoen)
6—150 kva. Al. Chal. 2400—240/120 v.
1—150 kva. Whse. SK. 13200-125/215 v., 3 ph
3—100 kva. G.E., 4600/2300—230/460 V.
3—100 kva. G.E., 13800—230/115 v., NEW
6—100 kva. G.E., 4600/2300-230/115 v., NEW
3—100 kva. G.E., 450-115/230 v., dry, 1 ph, new
2—75 Kva. G.E., 440—240/120 v. Pyramel
3—50 kva. G.E. 440—240/120 V., Pyr

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400 RPM, Mfg. in 1938, belted connected to 60 KVA General Electric 3 phase, 50/60 cycle, 220 volt alternators.

Price .....$1,500.00 Ea.

Can be inspected on original foundation under power.

Excellent condition.

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4— 90 HP locomotive fire box 200#
4—110 HP locomotive fire box 200#
2—150 HP locomotive fire box 150#
1—250 HP B&W water tube 170#
2—150 HP H R T 150#
1—410 HP Heine water tube 200#
1—505 HP Brine water tube 200#
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1—750 KW—75% P.F., 400± Steam, Condensing, 3 phase, 60 cycle, 480 volts, late type, High efficiency.

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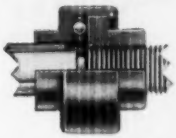

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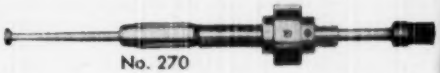

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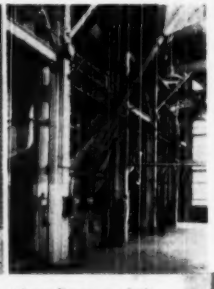

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Below—Belt Conveyor in tunnel

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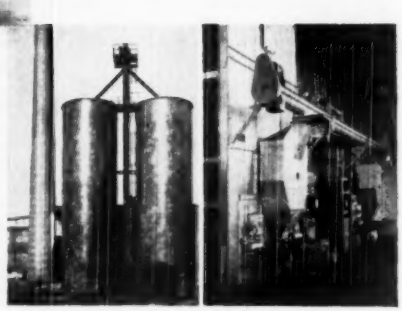

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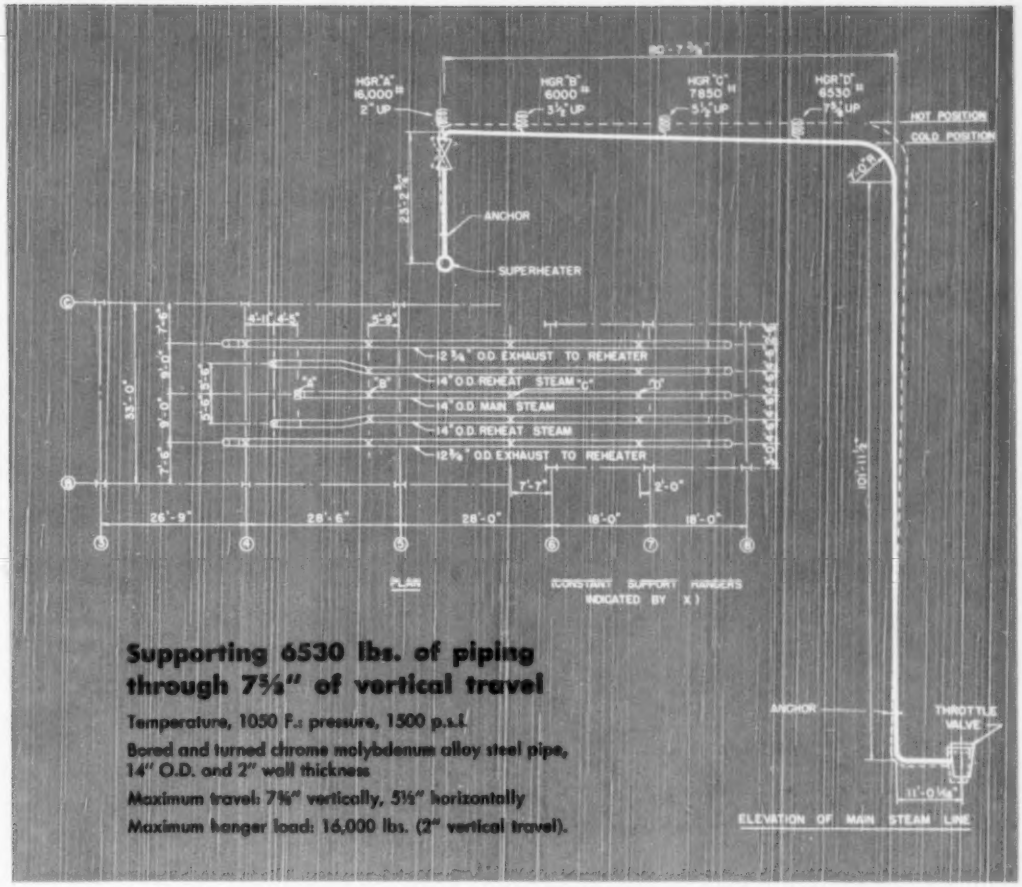

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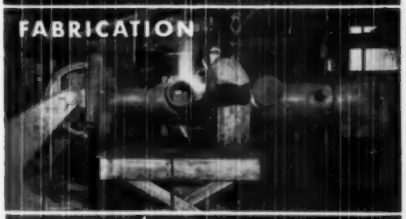

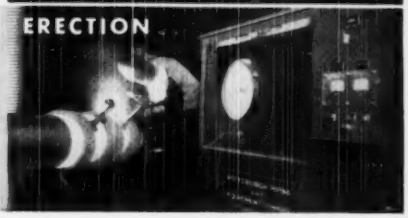

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